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Final Environmental Impact Statement for Wastewater Treatment Facilities City of Fort Worth, Tarrant County, Texas

(U.S.) Environmental Protection Agency
Dallas, TX

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Region 6
1201 Elm Street
Dallas, TX 75270

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Environmental Impact Statement

Final

Wastewater Treatment Facilities/City of Fort Worth, Tarrant County, Texas

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
INTERFIRST TWO BUILDING, 1201 ELM STREET
DALLAS, TEXAS 75270

April 18, 1984

TO ALL INTERESTED AGENCIES, OFFICIALS, PUBLIC GROUPS AND INDIVIDUALS:

Enclosed is a copy of the Final Environmental Impact Statement (EIS) on the awarding of a grant under Section 201 of the Clean Water Act for upgrading and expansion of wastewater treatment facilities in Fort Worth, Texas. This Final EIS has been prepared in compliance with the National Environmental Policy Act of 1969 and implementing regulations.

Because changes from the Draft EIS are minor, this Final EIS incorporates the Draft EIS by references and includes the following: 1) a revised and updated summary; 2) EPA's responses to comments received on the Draft EIS; 3) revisions to the Draft EIS; and 4) EPA's preferred action.

This Final EIS is being distributed to those who made comments on the Draft EIS and to those who requested a copy. The document is also available for public review at the following locations:

Fort Worth Water Department
1000 Throckmorton
Fort Worth, Texas

North Central Texas Council
of Governments
Centerpoint Two
616 Six Flags Drive
Arlington, Texas

Fort Worth Public Library
300 Taylor Street
Fort Worth, Texas

U.S. Environmental Protection Agency
28th Floor, InterFirst Two Bldg.
1201 Elm St.
Dallas, Texas

Arlington Public Library
101 East Abram
Arlington, Texas

Written comments on this Final EIS should be addressed to Mr. Clinton B. Spotts, Regional EIS Coordinator, at the above address by the date stamped on the cover sheet following this letter.

Sincerely yours,

Frances E. Phillips
Dick Whittington, P.E.
Regional Administrator

FINAL ENVIRONMENTAL IMPACT STATEMENT

WASTEWATER TREATMENT FACILITIES
CITY OF FORT WORTH, TEXAS

RESPONSIBLE AGENCY: U.S. Environmental Protection Agency, Region 6

COOPERATING AGENCY: U.S. Army Corps of Engineers, Fort Worth District

CONTACT FOR FURTHER INFORMATION:

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ABSTRACT:

The City of Fort Worth proposes to construct wastewater treatment facilities (WWTF) to collect and adequately treat 137 million gallons per day of wastewater through the design year 2005. The City proposes to expand the existing Village Creek WWTF and dispose of sludge by landfilling in the Trinity River floodplain. A number of alternatives were evaluated including sludge disposal by surface landspreading, wastewater treatment by slow rate irrigation - an alternative technology - and no action. The preferred decision of EPA and the Texas Department of Water Resources (TDWR) is to fund construction of eligible portions of the treatment system improvements, with conditions, and subject to consideration such as availability of funds and priority designations.

DATE COMMENTS DUE: [redacted] JUN 11 1984

RESPONSIBLE OFFICIAL: Frances E. Phillips
Dick Whittington, P.E.
Regional Administrator

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16. ABSTRACT

The City of Fort Worth proposes to construct wastewater treatment facilities (WWTF) to collect and adequately treat 137 million gallons per day of wastewater through the design year 2005. The City proposes to expand the existing Village Creek WWTF and dispose of sludge by landfilling in the Trinity River floodplain. A number of alternatives were evaluated including sludge disposal by surface landspreading, wastewater treatment by slow rate irrigation - an alternative technology - and no action. The preferred decision of EPA and the Texas Department of Water Resources (TDWR) is to fund construction of eligible portions of the treatment system improvements, with conditions, and subject to consideration such as availability of funds and priority designations.

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PREFACE

In July, 1983 the U.S. Environmental Protection Agency (EPA) filed a Draft Environmental Impact Statement (EPA 906/9-83-008) regarding wastewater treatment facilities in the City of Fort Worth, Texas. The Notice of Availability of the Draft EIS was published in the Federal Register on 15 July 1983. Since that time, EPA has received and reviewed public comments on the Draft EIS.

EPA has delegated authority for review and approval of facilities plans, plans and specifications, and construction grants to the Texas Department of Water Resources (TDWR). EPA and TDWR have determined their preferred course of action with regard to the funding of wastewater treatment facilities in Fort Worth. The U.S. Army Corps of Engineers, Fort Worth District has not determined their preferred action with regard to issuance of a Section 404/10 permit for the proposed sludge disposal facilities.

This document is the Final Environmental Impact Statement (Final EIS) on the awarding of a construction grant for the proposed upgrading and expansion of wastewater treatment facilities in the City of Fort Worth, Texas. Since responses to comments received on the Draft EIS did not require significant changes in data or analyses, the Draft EIS was not reprinted in full. This Final EIS incorporates the Draft EIS by reference and identifies all written and oral comments received during public review, the responses to those comments, and additions or revisions to the Draft EIS as a result of public review. The Draft and Final EISs, together, constitute the complete Final Environmental Impact Statement. A copy of the Draft EIS is available for review at each of the depositories listed on page II-3. A limited number of copies of the Draft EIS are still available from the EPA office in Dallas, Texas (see cover page for address and contact).

This Final EIS contains four Parts and eight Appendices. The four Parts are: a summary of the Draft and Final EIS (Part I); a listing of comments received and responses to major issues (Part II); additions or revisions to the Draft EIS (Part III); and the preferred alternatives (Part IV). Copies of the comment letters received on the Draft EIS and EPA's responses are included as Appendix A.

PART I. SUMMARY OF DRAFT AND FINAL EIS

A. DESCRIPTION OF ADMINISTRATIVE ACTION

The National Environmental Policy Act (NEPA) stipulates that each Federal agency shall ". . . include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on the environmental impact of the proposed action; any adverse environmental effects which cannot be avoided should the proposal be implemented; and alternatives to the proposed action . . ." This legislation is the basic framework for the Environmental Impact Statement (EIS).

One of the major programs conducted by the U.S. Environmental Protection Agency (EPA) which involves actions that may require an EIS is the Construction Grants Program, as authorized by Title II -- "Grants for Construction of Treatment Works, Section 201 (g) (1), of the Federal Water Pollution Control Act Amendments of 1972 (FWPCA), Public Law 92-500. This law authorizes the EPA Administrator ". . . to make grants to any State, municipality, or intermunicipal or interstate agency for construction of publicly-owned treatment works . . ." Major provisional changes were made to the FWPCA by the Clean Water Act of 1977 (CWA), Public Law 95-217, and by the Municipal Wastewater Treatment Construction Grant Amendments of 1981, Public Law 97-117. Many of the changes are directed toward emerging public philosophies and address concerns about priority water quality areas; chemical pollution; resource conservation, recovery, and recycling; financial capabilities of the grant applicant; treatment system performance; and environmentally compatible treatment systems. Key provisions of the CWA (as amended) that directly affect the construction grants program include:

- Prior to 1 October 1984, EPA may fund up to 75% of the grant eligible costs of constructing facilities designed to use conventional wastewater treatment technologies, and up to 85% of facilities designed to use innovative/alternative technologies. On or after 1 October 1984, EPA may fund up to 55% of the costs of conventional facilities, and up to 75% of the costs of innovative/alternative facilities;

- Municipalities are required to consider alternative or innovative systems that provide for reclaiming, reuse, or recycling of wastewater; elimination of discharges; and recovery of energy. As an incentive for increased utilization of these systems, EPA not only may provide up to 20% additional grant funds for alternative or innovative systems, but may pay 100% of the cost of rebuilding or modifying an innovative system that fails to meet its permit conditions;

- EPA may provide a 15% "cost effective bonus" for alternative or innovative systems when compared in a cost-effectiveness analysis with conventional technologies;

- Applicants for grant funds must analyze methods, processes, and techniques to reduce total energy consumption and to increase the open space and public recreation potential of lands, waters, and rights-of-way that are parts of a proposed project;

- The objectives of the CWA for sewage sludge management are to ensure protection of public health and the environment by promulgation of minimum Federal standards for sludge disposal and utilization and to maximize beneficial uses of sludges that conform to Federal standards; and

- EPA may delegate the management and administration of the Construction Grants program to the states, to manage the project to ensure its timely and economical completion and to eliminate duplicate review of the project documents.

On 24 August 1977, EPA awarded a grant (C-48-1323) to the City of Fort Worth (City) to assist the City in conducting facilities planning for a wastewater collection and treatment system to properly handle flows which would exceed the capacity of the existing 96 million gallons per day (mgd) Village Creek wastewater treatment facilities (WWTF). The facilities planning area includes most of Tarrant and a portion of Johnson counties. Since there was a potential that new and/or expanded wastewater treatment facilities, sludge treatment and/or disposal facilities, or the environmental effects of proposed facilities might extend outside of the facilities planning area, a study area was established which also included other parts of Johnson County and parts of Denton, Wise and Ellis counties. EPA determined that awarding of grant funds for construction of wastewater facilities would be a major Federal action with possible significant effects on the quality of the human environment, and on 28 June 1979 issued a Notice of Intent to prepare an EIS. It also was determined that the EIS would be prepared concurrently with preparation of the facilities plan (often called a "piggyback" EIS).

B. NEED FOR ACTION

The City determined that modifications to its present wastewater collection and treatment facilities were needed based on the following situations:

(1) Flows generated within the existing service area periodically exceed the capacity of the existing wastewater collection system.

(2) Capacity of the existing 96 mgd Village Creek WWTF potentially would be reached by year 1985. Also, peak flows of 3.4 times average enter the WWTF, causing operation and maintenance problems.

(3) The public in the vicinity of the Village Creek WWTF has expressed strong disapproval of odors generated by the existing treatment facilities.

(4) Federal regulations prohibit the City's practice of disposing sludge on public lands without disinfecting the sludge or controlling public access to the disposal sites.

(5) Dramatic increases in energy costs warrant greater emphasis on utilization of efficient energy recovery systems in association with wastewater collection and treatment.

(6) During the period from March 1979 through December 1982, the existing Village Creek WWTF produced a monthly average effluent quality which met the State of Texas minimum standard for secondary treatment five times, and which met current design limitations four times. (However, since March 1983, the existing plant has been producing effluent within 10/15 limits every month.)

Recent improvements in the Village Creek WWTF effluent quality apparently resulted in a marked improvement in the quality of the West Fork Trinity River. Further improvements need to be made to enable the Village Creek WWTF to consistently meet wastewater treatment requirements and thus achieve further improvements to the quality of the West Fork Trinity River.

C. ALTERNATIVES TO THE CITY'S PROPOSED PROJECT

Many alternatives for wastewater collection, treatment, and disposal were evaluated during facilities planning. Initially, over 300 alternatives for wastewater management were identified and evaluated. Following evaluation of the 300 preliminary alternatives, 15 intermediate alternatives were identified for further development and evaluation. The 15 alternatives included both conventional treatment technologies, and alternatives involving innovative and/or alternative land treatment using slow rate irrigation, overland flow, or rapid infiltration. Evaluation of the 15 intermediate alternatives concluded with identification of four (4) final alternatives for detailed development and analysis.

The four final alteratives for wastewater collection and treatment identified by the City for detailed evaluation are as follows:

(1) Alternative 1. Alternative 1 would involve expanding the Village Creek WWTF to a capacity of 137 mgd. All required liquid treatment units would basically be the same as those at the existing WWTF, and would be built within the dikes surrounding the existing WWTF. Sludge would be mechanically dewatered at the Village Creek WWTF, and then transported by truck to a 175-acre stockpile area located in a 60,000-acre sludge disposal target area north of Saginaw, Texas. Sludge would be disposed in the target area by landspreading on approximately 22,000 acres of agricultural land at the rate of 2.6 tons per acre or less, or on grasslands at the rate of 5.0 tons per acre or less. Sludge would not be placed on food-chain crops. Improvements to the collection system and construction of the TRA transfer line would be as described in Section D.

(2) Alternative 2A. Alternative 2A would involve expanding the Village Creek WWTF to a capacity of 137 mgd, with all treatment units located inside the existing dikes. Sludge would be mechanically dewatered at the Village Creek WWTF, and then hauled by truck to a 175-acre stockpile area located in a 60,000-acre sludge disposal target area north of Saginaw, Texas. Sludge would be disposed in a municipal refuse landfill (co-disposal) located in the target area. Improvements to the collection system and construction of the TRA transfer line would be as described in Section D.

(3) Alternative 2B. Alternative 2B would involve expanding the Village Creek WWTF to a capacity of 137 mgd, and disposing of sludge in a sludge only landfill located in the West Fork Trinity River floodplain across (north) from the existing WWTF. Alternative 2B is the City's proposed project as described in Section D.

(4) Alternative 3. Alternative 3 would involve maintaining the Village Creek WWTF at a capacity of 96 mgd, with sludge mechanically dewatered and disposed by land spreading on approximately 15,000 acres located somewhere in a 60,000-acre sludge disposal target zone north of Saginaw, Texas. The remaining 41 mgd would be transported through dual pipelines to an 8,460-acre slow rate irrigation site located in Johnson County just northeast of Godley, Texas. The 41 mgd of wastewater would be treated in aerated lagoons and stored in a 90-day capacity storage reservoir. Wastewater from the reservoir would be applied by slow rate irrigation to 8,460 acres of farmland and grazingland at the rate of 1.25 inches per week. Sludge from the aerated lagoons also would be landspread in liquid form on the irrigated lands.

In addition to the four final alternatives, the alternative of taking no action was evaluated. The no action alternative would consist of the City doing nothing in the way of system expansion. In design year 2005, 137 mgd of wastewater in the present collection system would overflow existing sewer mains. High flows would exceed the capacity of the Village Creek WWTF, causing poorly treated effluent to be discharged to the West Fork Trinity River. Sludge would not be properly digested, and thus poorly-digested sludge would be placed on the sludge drying beds and then hauled to municipal refuse landfills for disposal.

D. DESCRIPTION OF THE CITY'S PROPOSED PROJECT

The City proposed to make improvements to their wastewater collection and treatment facilities to properly handle wastewater for a 20-year planning period, from 1985 to design year 2005. Major improvements are proposed for the following wastewater collection mains: Village Creek; Clear Fork; West Fork; Walker Branch; and a 72-inch (in) diameter main designated M-245; and a 96-in diameter main designated M-280. The new and/or improved mains would convey a daily average design flow of 137 mgd to the Village Creek WWTF.

The Village Creek WWTF would be expanded at its present site to provide advanced secondary treatment for 137 mgd of wastewater. The expanded Village Creek WWTF would include the following new or modified treatment units:

- New primary screening and primary sedimentation tanks;
- New activated sludge secondary treatment facilities;
- New dual-media filtration advanced treatment facilities;
- New effluent disinfection (chlorination) units;
- New sludge thickening and anaerobic digestion units;
- New methane gas (energy) recovery and utilization facilities; and
- Odor control by covering major odor sources and scrubbing exhausted air and other measures in accordance with a comprehensive odor control plan.

All of these wastewater treatment units would be constructed inside of the levees (i.e., dikes) surrounding the existing Village Creek WWTF. Treated effluent would be discharged to the West Fork Trinity River.

Sludge produced at the Village Creek WWTF would be pumped through two 12-in diameter pipelines to a 500-acre sludge disposal site across the West Fork Trinity River, due north of the existing WWTF. The 500-acre site is located entirely within the 100-year floodplain of the Trinity River. Sludge would be mechanically dewatered at the disposal site, and then disposed in a sludge only landfill occupying 134 acres of land. The dewatering facilities and the landfill would be contained within a dike built in the floodplain to protect the facilities from flooding. In addition, the City would develop a program for beneficial reuse of sludge. Agricultural disposal of sludge, composting (disinfection) followed by bag marketing and/or disposal on public lands, reclaiming strip mines and other experimental programs would be investigated as beneficial reuse concepts. The ultimate goal of the proposed project would be to beneficially use all sludge produced by the Village Creek WWTF. For the proposed project, use of existing sludge drying beds adjacent to the Village Creek WWTF would be discontinued; however, piping and other facilities associated with the drying beds would be retained so that the drying beds could be used under emergency conditions. An emergency condition would exist when sludge flow at the Village Creek WWTF exceeds the capacity of the system, including backup capabilities.

To prevent the newly constructed levees (dikes) from causing flooding problems upstream or downstream, part of the existing dikes around the sludge drying beds would be moved back away from the Trinity River to provide additional area for floodwaters to pass through. Also, a flood relief channel with an 800-foot bottom width, 5:1 side slopes, and a total length of approximately 5,900 feet would be constructed on the 500-acre sludge disposal site to convey floodwaters past the newly diked landfill area.

The proposed project would be built in three major phases:

- Phase I would involve adding liquid treatment to properly handle peak flows, mechanical sludge dewatering and landfill disposal, and odor control facilities. Phase I would be fully operational in July 1986;
- Phase II would involve adding liquid treatment facilities to properly handle 120 mgd. Phase II would be completely operational in October 1989; and
- Phase III would involve adding liquid treatment and sludge treatment facilities to properly handle 137 mgd. Phase III would be fully operational in July 1997.

Construction of the proposed project would cost approximately $183 million, including engineering and administrative fees and other contingencies. An EPA grant could amount up to approximately $138 million dollars, provided the City is awarded a grant for 75% of the estimated project cost. For 55%, the EPA grant could amount up to approximately $101 million. Operation and maintenance costs potentially would range from $8.3 million annually in 1985 to $9.1 million annually in 2005. The above estimates are based on September 1980 dollars. The total annual expense of the project to the City would average approximately $27.3 million for each year of the 20-year planning period. Total average monthly user charge (i.e., sewer bill) potentially would range from $10.46 to $15.32, depending on the amount of Federal grant funding (if any) actually made available to the City (total average monthly user charge includes $5.60 sewer bill for current services provided).

At this time no eligibility determinations have been made for any of the proposed facilities. EPA participated in the expansion of the Village Creek WWTF to 96 mgd annual average daily flow under grant No. C-481017. Any additional work required at the plant to achieve a treatment capacity of 96 mgd annual average daily flow would not be allowable for EPA participation. In addition, any existing treatment unit abandoned or replaced before its useful life has expired would be subject to EPA's policy on abandonment of construction grant assisted publicly-owned treatment works. Under this policy, EPA will determine if recovery of Federal funds from abandoned treatment units is applicable. Recovery of Federal funds would be based on whether or not the abandonment is justifiable.

E. ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

Implementation of the no action alternative potentially would result in the following: overflow of raw sewage from collection mains would cause environmental health problems and water quality degradation throughout Fort Worth; significant undesirable odors in the vicinity of the Village Creek WWTF, sludge drying beds, and municipal refuse landfills used for ultimate disposal of inadequately digested and partially dried sludge; substantial degradation of water quality and associated loss of aquatic life in the West Fork Trinity River; stagnation of growth in Fort Worth and the customer communities due to the lack of adequate wastewater collection and treatment facilities; potential reduction of land values in the vicinity of the Village Creek WWTF; and aesthetically displeasing conditions along existing collection mains and in the vicinity of the Village Creek WWTF.

Construction and operation of any of the final four alternatives would result in both adverse and beneficial effects. Alternatives with similar components (e.g., Alternatives 1, 2A, and 2B all involve expansion of the Village Creek WWTF) would have similar effects. Adverse and/or beneficial effects which would occur as a result of implementing any of the four final alternatives are described in the following paragraphs.

Major effects to topography and sub-surface geology would not occur due to implementation of any final alternatives. Construction of dikes for Alternative 2B would involve minor topographic changes. Water holding capacity and erodibility of the soil would be beneficially affected by landspreading operations involved with Alternatives 1 and 3. There also would be an accumulation of toxic metals in soils used in land application operations of Alternatives 1 and 3; however, maximum concentrations of metals regulated by EPA would not be exceeded because of compliance with regulations governing the application of sewage sludge to land (40 CFR Part 257). Increased erosion potential would exist for all alternatives due to land-disturbing activities at the Village Creek WWTF, as well as construction of collection mains, the TRA transfer line, and various landfills and storage reservoirs.

Groundwater contamination would not occur due to landspreading activities with Alternative 1 because impermeable soils predominate at the landspreading site. Alternatives 2A and 2B also would not adversely affect groundwater because landfills would be constructed with clay and/or membrane liners in accordance with state requirements. Although permeable soils do exist in the Mustang Creek area, potable groundwater obtained from Trinity Group aquifers are approximately 300 to 400 feet deep. Contaminants in wastewater applied by slow rate irrigation would not travel to these depths, thus, Alternative 3 would not cause groundwater contamination problems.

Surface waters would undergo minimal quality degradation due to sedimentation and erosion from construction activities associated with all final alternatives. Minor increases in contaminated urban runoff also would occur with all final alternatives as an indirect impact caused by population growth and conversion of lands to urban uses allowed by available wastewater management capacities. Base flow in the West Fork Trinity River would increase as a result of increased effluent discharges from Alternatives 1, 2A, and 2B. The base flow of Mustang Creek and associated available raw water supply in Lake Benbrook also would increase during summer months due to runoff from the slow rate irrigation system utilized with Alternative 3. Water quality of the West Fork Trinity River would improve as a result of all alternatives due to a reduction in pollutants discharged from the improved Village Creek WWTF. Discharge of minor amounts of pathogenic organisms and toxic metals from sludge potentially would occur due to landspreading activities associated with Alternatives 1 and 3, and due to pilot beneficial reuse programs (e.g., sludge injection and/or agricultural landspreading) conducted outside of diked areas in the West Fork Trinity River floodplain as considered in Alternative 2B.

Substantial undesirable odors emanate periodically from the existing Village Creek WWTF. With all alternatives, comprehensive odor control would be utilized. This would result in a reduction in the magnitude and frequency of adverse odors. Minor additional quantities of pathogenic aerosols would be produced by additional activated sludge tanks proposed in Alternatives 1, 2A, and 2B. Fugitive dust and noise would be generated during construction activities associated with all final alternatives, but fugitive dust would be substantial only from landspreading activities associated with Alternative 1. Moderate generation of odors and pathogenic aerosols would occur from aerated lagoons and slow rate irrigation facilities associated with Alternative 3; however, with the sparse population in rural areas near Godley, Texas, a minimum number of people would be affected.

Loss of vegetation and related wildlife habitat from construction activities associated with all final alternatives except Alternative 2B would be minor. Significant adverse impacts to wildlife habitat resulting from Alternative 2B would be mitigated by implementation of measures developed by the City of Fort Worth as a part of the overall plan. Pesticides (insect killers) and herbicides (weed killers) used in conjunction with landspreading activities of Alternatives 1 and 3 would potentially affect wildlife. Aquatic biota in the West Fork Trinity River would diversify due to improved effluent quality and subsequent improved water quality due to all final alternatives. Conversion of irrigated lands to growth of harvested grain and/or hayfields as part of Alternative 3 would cause a potentially substantial loss of acreage in unharvested grain used for food by gamebirds. Destruction of a portion of the 4.4 acres of USCOE-designated wetlands would occur with Alternative 2B due to the construction of the sludge only landfill, flood levees, and flood relief channels.

A pedestrian survey conducted by a TDWR staff archaeologist of the sludge only landfill, flood levees, flood relief channels, and collector lines for Alternative 2B located three archaeological sites. Two of the sites are considered to be significant and potentially eligible for nomination to the National Register of Historic Places. However, adverse impacts to these sites would be avoided by relocation of collector line routes. Adverse effects on cultural resources due to implementation of any of the final alternatives would be minimized by EPA compliance with Section 106 of the National Historic Preservation Act, as amended. Finding and recording of significant cultural resources constitutes a beneficial effect.

Providing proper wastewater collection and treatment facilities through implementation of any of the four final alternatives would result in continued moderate population growth in the facilities planning area, in accordance with current expectations of regional planning agencies. Substantial population movement or relocation would not occur due to development of any of the four final alternatives.

Predominant land uses in the project region are agricultural, primarily cropland and rangeland. Urban uses are increasing in Tarrant County consistent with population growth of the area. Implementation of any of the four final alternatives would not substantially change land use or land use trends in the facilities planning area.

Transportation in the project area is primarily via automotive vehicles. Major beneficial and/or adverse effects would not occur to transportation systems due to construction and operation of any of the four final alternatives. Minor traffic congestion would occur from construction traffic generated during construction of any of the four final alternatives. Hauling dewatered sludge to landspreading or landfill sites as part of Alternatives 1, 2A, or 3 also may cause minor traffic disruptions on local streets. Disruption to community services such as water, natural gas, and electric utility service also would occur in isolated cases due to accidental utility line breakage during construction of collection lines and/or force mains associated with each of the four final alternatives.

Economic conditions in the project region are stable with a well diversified economic base. Major adverse effects to the regional economy would not occur from implementation of any of the four final alternatives. Any of the four final alternatives would be financed potentially with Federal grant funds and through sale of municipal bonds. Construction would be phased to avoid unreasonable municipal financial burdens. Facilities total average user charges (i.e., monthly sewer bills) for the City's proposed project (Alternative 2B) potentially would range from $10.46 per month to $15.32 per month during the 20-year planning period. Costs for other alternatives would be slightly higher.

Supplies of electrical energy, natural gas, propane, and motor fuels (e.g., gasoline and diesel) in the project region are adequate and would not be adversely affected by energy demands associated with any of the four final alternatives. All four final alternatives provide for methane produced by anerobic digestors to be utilized for fuel and electrical energy production at the Village Creek WWTF. Approximately 45% of the total energy requirement of the Village Creek WWTF would be provided by energy (methane) recovery and utilization facilities at the WWTF.

Serious environmental health effects are not anticipated to occur as a result of implementation of any of the four final alternatives. Minor problems with nuisance vectors (e.g., flys and mosquitoes) potentially would occur due to all alternatives. Serious environmental health problems resulting from generation of pathogenic aerosols by wastewater treatment facilities have not been substantiated. Environmental health problems associated with sludge disposal would not occur if state and Federal regulations concerning landspreading and/or landfilling practices are followed.

Recreational and aesthetic resources would not be adversely affected by implementation of any of the four final alternatives. Adequate site selections and establishment of buffer zones and pleasant landscaping would avoid adverse aesthetic (e.g., visual) effects of sludge disposal systems. Recreational opportunities along the West Fork Trinity River may increase due to improved water quality and implementation of the fish and wildlife mitigation plan. Although the City recognized recreational opportunities associated with pipeline rights-of-way (e.g., hike and bike trails), such recreational facilities currently are not proposed as part of the four final alternatives.

Alternatives available to EPA through the TDWR basically include: (1) awarding of a grant for eligible cost of construction of wastewater treatment facilities, and (2) denial of a grant. A grant agreement also can be modified by EPA placing conditions on the grant. The USCOE would have the alternative of issuing or denying a Section 404 permit for the discharge of dredged and fill material into waters of the United States, including adjacent wetlands, and a Section 10 permit for any work or structure in or affecting a navigable water. The USCOE is currently processing the application for the permit and all comments forwarded to EPA will be supplied to the USCOE for use in their public interest review. Denial of a grant and/or permit by EPA or other agencies might result in the City taking no action, and thus the effects potentially would be similar to effects of the no action alternative previously described. However, the City is responsible for meeting its wastewater discharge permits regardless of whether or not Federal assistance is received. Award of a construction grant and issuance of appropriate permits would most likely result in construction of wastewater treatment system improvements and expansion with associated effects as described in Section E of this Chapter.

F. COORDINATION

EPA Region 6, TDWR, and the City of Fort Worth have made a concerted effort to involve other Federal, state, and local agencies and the general public in the development of this document. A public scoping meeting was held on 15 August 1979 in Fort Worth. Two public meetings were held to discuss the screening of alternatives and progress of the Facilities Plan and the EIS. Fourteen Citizens Advisory Committee meetings were held. Additionally, public information depositories were established and are being maintained in three convenient public buildings located in Tarrant County for the duration of the project.

A Notice of Availability for the Draft Environmental Impact Statement was published in the Federal Register on 15 July 1983. That notice announced a 45-day public review and comment period ending on 29 August 1983. EPA and the City of Fort Worth conducted a public hearing on the Draft EIS and Draft Facilities Plan in Fort Worth on 18 August 1983.

Comments on the Draft EIS included:

- Statements that odor control plans are inadequate and that a comprehensive odor control plan should be developed;
- Recommendations regarding use of the sludge drying beds;
- Concerns about aspects of the City's proposed sludge disposal plan including compliance with appropriate regulations;
- Recommendations for monitoring of odor, groundwater, and other impacts;
- Concerns about operation of the Village Creek WWTF during construction and when critical units are down;
- Concerns about alternatives considered for sludge disposal;
- Concerns about construction in floodplains and wetlands;
- Concerns about propagation of flies and mosquitoes;
- Concerns about adverse impacts on fish and wildlife resources and the lack of mitigation for those impacts;
- Concerns and recommendations about land application of wastewater and sludge.

Other comments and questions addressed specific technical aspects of the Draft EIS which were unclear or incorrect. Responses to the comments are provided in the Final EIS in three forms: (1) Appendix A contains copies of written comments with responses; (2) major issues are discussed in Part II; (3) changes necessary to the Draft EIS are made in Part III.

G. PREFERRED ALTERNATIVES

The preferred alternative of the City of Fort Worth is to make certain improvements to their wastewater collection and treatment facilities to properly handle wastewater from Fort Worth and their customer cities for a 20-year planning period, from 1985 to design year 2005. The City's preferred alternative includes major improvements for the following wastewater collection mains: Village Creek; Clear Fork; West Fork; Walker Branch; M-245; and M-280. The Village Creek WWTF would be expanded at its present site to provide advanced secondary treatment for 137 mgd (average annual flow) of wastewater. New units would include: primary screening and primary sedimentation tanks; activated sludge secondary treatment facilities, dual-media filtration advanced treatment facilities; effluent disinfection (chlorination) units; sludge thickening and anaerobic digestion units and methane gas (energy) recovery and utilization facilities. Odor control would be accomplished by covering major odor sources and scrubbing exhausted air along with other measures in accordance with a comprehensive odor control plan. All of the above units would be constructed inside existing levees and effluent would be discharged to the Trinity River.

Sludge would be pumped through two 12-inch pipelines to a disposal site due north of the Village Creek WWTF across the Trinity River. Sludge would be mechanically dewatered at the disposal site and then disposed in a sludge only landfill. A levee would be constructed around the dewatering facilities and landfill to protect them from flooding.

In addition, the City would develop an experimental program for beneficial reuse of sludge. The ultimate goal would be to beneficially use all of the sludge produced by the Village Creek WWTF. Regular use of the existing sludge drying beds would be discontinued; however, the beds would be retained for use in emergency situations.

To prevent the newly constructed levees (dikes) from causing flooding problems upstream or downstream, part of the existing dikes around the sludge drying beds would be moved back away from the Trinity River to provide additional area for floodwaters to pass through. Also, a flood relief channel with an 800-foot bottom width, 5:1 side slopes, and a total length of approximately 5,900 feet would be constructed on the 500-acre sludge disposal site to convey floodwaters past the newly diked landfill area.

The proposed project would be built in three major phases:

- Phase I would involve adding liquid treatment to properly handle peak flows, mechanical sludge dewatering with landfill disposal, sludge, and odor control facilities. Phase I would be fully operational in July 1986;
- Phase II would involve adding liquid treatment facilities to properly handle 120 mgd. Phase II would be completely operational in October 1989; and
- Phase III would involve adding liquid treatment and sludge treatment facilities to properly handle 137 mgd. Phase III would be fully operational in July 1997.

The total present worth cost of the proposed facilities is as follows:

Interceptors and related improvements	$ 65,330,000
Treatment works and sludge management	210,020,000
TOTAL COST	$275,350,000

EPA has delegated authority for review and approval of facilities plans, plans and specifications, and construction grants for wastewater treatment facilities under the Clean Water Act to the Texas Department of Water Resources (TDWR). The preferred funding recommendation of the USEPA to the TDWR is to fund, with conditions, construction of eligible portions of the treatment system improvements proposed by the City. Funding would be subject to considerations such as availability of funds and priority designation. Since this facility is designed to provide treatment more stringent than secondary, the incremental captial costs of the project that are attributable to effluent limitations or water quality requirements more stringent than secondary must be justified. The justification must show significant water quality improvement or the prevention of degradation of existing water quality. This review has not been completed. If the review does not support the need for the more stringent effluent limits, those portions of the project which are attributable to those limits will not be eligible for Federal funding and the cost to Fort Worth will increase significantly. When the advanced treatment (AT) portion of this project (or any part of the AT portion) is expected to be funded during the following fiscal year, the necessary information must be submitted to initiate a formal AT review of the entire system proposed in the facilities plan. Final approval of the facilities plan cannot be made until the environmental review process is complete. The final decision will be presented in a Record of Decision, which EPA will issue following the review period for this Final EIS.

The USCOE is currently processing the application for the City of Fort Worth's Section 10 and 404 permit. Comments continue to be accepted and all available information is being reviewed as to the decision to issue or deny the permit. The USCOE has no preferred alternative at this time.

PART II. CONSULTATION AND COORDINATION

This part of the Final EIS briefly discusses the public participation program conducted during preparation of the Draft EIS (Section A), presents the public review comments received on the Draft EIS (Section B), and provides an overview of EPA's responses to the major comment issues raised by respondents (Section C).

A. PUBLIC PARTICIPATION IN PREPARATION OF THE DRAFT EIS

Chapter 6 of the Draft EIS contains a summary of public involvement in the planning of the Fort Worth wastewater treatment facilities. The Fort Worth EIS was begun in mid-1979 and included a full scale public participation program. Public input was received principally by (1) a series of public meetings held during the EIS process, including the scoping meeting; and (2) frequent meeting of the Citizen's Advisory Committee (CAC), appointed by the City of Fort Worth in 1979. Significant issues raised by those attending were as follows:

- Sources of odors and effectiveness (or lack thereof) of methods to control odors at the existing Village Creek WWTP;
- Correction of existing odor problems before any possible expansion at the existing site and assurance that new facilities would not aggravate the odor problem;
- Impacts of existing and potential future odors and insect problems on property values and tax base;
- Problems with local zoning and development encroaching on the existing plant site;
- Importance of considering alternative methods of sludge handling and disposal with emphasis on a system that reduces odor;
- Importance of considering all feasible wastewater management alternatives including alternatives to further expansion of the existing Village Creek WWTF (i.e., abandoning existing WWTF and developing an alternative system);
- Importance of evaluating each alternative in regard to potential impacts on:
    - water quality
    - air quality (including odors)
    - biological resources
    - socioeconomic infrastructure (including property values, land use, zoning, public services, tax base, community growth, etc.)
    - public health
    - ambient noise levels
    - recreation

- Need for project to comply with appropriate environmental laws and regulations;

- Need for all alternatives considered to be cost effective;

- Need for proposed program to be consistent with areawide water quality management planning;

- Need to enforce current regulations for operation of and wastewater discharge from the existing Village Creek WWTP before any expansion plans are implemented;

- Importance of assuring an adequate level of trained operation and maintenance staff at the Village Creek WWTP; and

- Need for expanded wastewater treatment to accommodate planned growth and development.

B. REVIEW OF AND COMMENTS ON THE DRAFT EIS

The Notice of Availability on the Draft Environmental Impact Statement appeared in the Federal Register on 15 July 1983. This Notice announced a 45-day public review period ending on 29 August 1983. The public review period was scheduled to provide concerned agencies and the public an opportunity to reveiw the Draft EIS and offer comments on the adequacy of the draft statement and the environmental impacts of the proposed action and its alternatives.

Over 300 copies of the Draft EIS were distributed to reviewing agencies and to the public. Copies of the Draft EIS were also made available to the public at five locations in the project area. During the review period for the Final EIS, copies will be available for public review at the following locations:

1. Fort Worth Water Department, 1000 Throckmorton, Fort Worth, Texas.

2. Fort Worth Public Library, 300 Taylor Street, Fort Worth, Texas.

3. Arlington Public Library, 101 East Abram, Arlington, Texas.

4. North Central Texas Council of Governments, Centerpoint Two, 616 Six Flags Drive, Arlington, Texas.

5. U.S. Environmental Protection Agency, 28th Floor, Interfirst Two Building, 1201 Elm Street, Dallas, Texas.

The Public Hearing on the Draft EIS and Draft Facilities Plan was held in Fort Worth, Texas on 18 August 1983. In addition to the announcement in the Federal Register, the public was notified of the hearing by advertisements in the Fort Worth Star Telegram, the Dallas Morning News, the Dallas Times Herald, the Arlington Citizen Journal, the Arlington Daily News, the Mid Cities News, the Cleburne Times Review, and by use of the EPA's project mailing list. Public comment on the proposed awarding of EPA funds for wastewater treatment facilities in Fort Worth was solicited through formal oral testimony and written statements. Eleven people, excluding government officials and consultants involved in preparation of the EIS, spoke at the public hearing.

During the public review period on the Draft EIS, 28 comment letters were received. Along with the hearing record, each letter was reviewed to determine if it contained substantive comments which required a response in the Final EIS. Comments which presented new data, questioned facts and/or analyses, or were related to issues in the Draft EIS were considered, and, if appropriate, revisions to the Draft EIS have been incorporated into this Final EIS.

Comments received on the Draft EIS are summarized in Table II-1, which is organized into three parts: Part 1 reviews comments received at the Public Hearing; Part 2 presents comments received from government agencies which have a formal role in EIS review; and Part 3 presents comments expressed by the general public. Parts 2 and 3 identify the sequence or control number assigned to each letter; these numbers are used to refer to specific letters/ comments following in the text of this Final EIS. Appendix A presents copies of all letters received on the Draft EIS and EPA's responses.

TABLE II-1. COMMENTS ON THE DRAFT EIS

Part 1 of this table lists comments received at the Public Hearing; Part 2 presents comments received from government agencies having a formal role in EIS review; Part 3 presents comments expressed by the general public. Appendix A contains copies of the full letters received. All letters are assigned a control number, beginning with 1 for the first letter, which corresponds to their summarized comments in this table.

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1. PUBLIC HEARING: 18 AUGUST 1983, FORT WORTH, TEXAS

A. Federal Officials or Representatives:

Chuck Davis, U.S. Fish and Wildlife Service. Fish and wildlife resources will be adversely affected and no mitigation for the losses of wetlands, bottomland timber, and other fish and wildlife habitats are described. The cumulative impacts of developments (e.g., fill and diking) in the floodplain of the West Fork increases the elevation of major flood events and creates the need for structural flood protection. The ultimate result of these interactions is a complete loss of the natural riparian system. Alternatives to the use of drying beds, e.g., land treatment methods, should be given due consideration from a fish and wildlife resource standpoint.

B. City Officials or Representatives:

Earnest Casstevens, City of Arlington. This is a long-standing problem and didn't just start 2 years ago. Odor nuisance was the reason cited by the City of Fort Worth for closing the Riverside Plant. Arlington conducted an environmental study of the 1972 expansion plan which concluded (1) Village Creek expansion would significantly affect new portions of Arlington; (2) odor would increase by a factor of 5 from additional facilities; (3) inhabited land affected by odor would increase by a factor of 8 (i.e., 2,900 additional acres). Both 1973 and 1983 EIS's conclude chemical addition should effectively control odors. Odor nuisance of enormous proportions began with the wastewater flow diversion from Riverside to Village Creek and it continues to this date. Odor control by chemical addition alone, has proven to be an uneffective odor control measure, and a disasterous failure. Arlington reached the same conclusion regarding the Village Creek plant in 1983 that Fort Worth reached regarding the Riverside Plant in 1973, i.e., upgrading and increasing the capacity of the plant is not an environmentally acceptable alternative. The EIS does not provide any basis for evaluating a proposed major Federal action, and is simply an unacceptable way to approach a 201 facilities plan since no conclusion and detailed specifications are based on investigation. The EIS provides no basis for a conclusion that the extension of the severe odor problem over a wide area will not result. Based on the facilities plan and years of experience at the plant, the EIS is totally inaccurate, misleading, and inadequate. Without facilities to ensure a significant (odor) reduction in the frequency, severity and extent of occurrences, the result is to continue, aggravate, extend, and expand an odor nuisance in a densely populated urban area. The term "emergency" sounds good, but the sludge drying beds are the source of the greatest problems from the plant. The Draft EIS cannot give the environmental impacts of disposal of sludge, i.e., where and

Table II-1 (Continued)

what the effects will be. Co-disposal of sludge in Fort Worth's southeast landfill would have an adverse effect on the water supply for the City of Arlington. If dewatered sludge is stockpiled at the dewatering location, a broader area of potential odor nuisance will be created. There is intent to stockpile sludge unprotected outside of the dike system in the flood plain. The City of Fort Worth has applied for a permit to substantially expand the southeast landfill site, which makes it a prime candidate for sludge disposal.

C. Public:

Bill Shelton, President, Fort Worth Chamber of Commerce. The Fort Worth Chamber of Commerce supports Alternative 2-B for expanding the Village Creek plant; economic and environmental consequences of not expanding the facilities are unacceptable.

William Daniel, resident of Godley area. Runoff of wastewater from the proposed land application site would go into Benbrook Lake because our land will only take so much water. Land area used for the holding tank and aerated lagoon would require about 900 acres of taxable land. In addition to affected wildlife, seven dairies would be forced out of business should such a plan be implemented. Landowners would not be willing to submit their land to any wastewater treatment type situation.

Georgia Kidwell, League of Women Voters of Texas. Additional treatment capacity is urgently needed if recent improvements in effluent quality are to be maintained, and if further improvements are to be achieved. In comparison to the negative impacts of the proposed sludge-only landfill (i.e., economic and environmental), what would be the costs and impacts of sludge-disinfection to allow continued use of the sludge as a soil conditioner for public lands? Since 30-40% of BOD loading is generated by industries, what benefits in effluent quality could be achieved by more stringent pre-treatment requirements? What would be the costs to the industries? The construction schedule should be followed or accelerated if possible to assure continued improvements in water quality in the West Fork of the Trinity River.

I.M. Rice, Trinity Improvement Association. Alternative 2B offers the most practicable solution, and the time has arrived when plant capacity must be increased. It is respectfully recommended that the EIS be approved so that the expansion and upgrading of the Village Creek plant can proceed in a timely manner.

Harper Tincecum, Roanoke, Texas. The proposed landfill site that Fort Worth was considering in Alternatives 1, 2A, and 2B is partially in the city limits of Roanoke and in the way that the City of Roanoke will be growing. Roanoke is bounded the other way by other cities, a lake, a creek bottom, and lowlands where they can't build much of anything because of the floodplain there.

Nancy Martin, People United to Save Our Homes (PUSH). Considerable improvements have been made to the Village Creek facility; however, strong odors still permeate the area on many occasions. There should be no expansion of the plant as outlined in Alternatives 1 and 2 until the City of Fort Worth demonstrates the capability of operating the plant, without incident, for a period of at least 1 to 3 years. Alternative 3 is acceptable on an interim

Table II-1 (Continued)

basis to prove the value of the land treatment concept. Any solution must close the sludge drying beds permanently. Who is to define "emergency"? If the beds are not permanently dismantled, they should be fully lined and an underdrainage system should be installed. Any solution must enclose the sewage plant system to stop the emission of odors from the plant. If the chemicals don't work, how many complaints will have to be made before the City of Fort Worth considers covering the odor source area? It is essential that there be a modification in the grit removal stage of the treatment process. Alternative 2B was not approved by the CAC nor recommended by the CAC in July of 1982. The City of Arlington is not a factor in the expansion of the Village Creek plant since only 7-9% of the City's sewage is treated at the Village Creek plant with the remainder going to the TRA plant. PUSH participated in good faith in the facilities planning and EIS process and hopes that a solution acceptable to all parties can be negotiated.

Crystal Fisher, resident of Arlington. Agree with statements made by the City of Arlington and by Ms. Martin.

Nena Brown, homeowner near Eagle Mountain Lake area. Fill, either sewage landfill or chemicals, should not be put north of Saginaw near the water supply for us and Fort Worth.

Nena Outlaw, resident of Roanoke, Texas. Where would the 175-acre stockpile area be located north of Saginaw?

2. GOVERNMENT AGENCY REVIEW

A. Federal Agencies:

Letter 1. Federal Emergency Management Agency, Region VI, R. Dell Green, Chief Natural and Technological Hazards Division, Denton, Texas.

All new construction in the 100-year floodplain must be in compliance with the City's floodplain management ordinance; no encroachment is allowed within the floodway that will result in any increase in flood levels in Fort Worth during the occurrence of the base flood discharge; Executive Orders 11988 and 11990 are intended to avoid impacts on floodplains and wetlands, respectively, wherever there is a practicable alternative.

Letter 2. U.S. Department of Health and Human Services, Public Health Service, Frank S. Lisella, Ph.D., Chief Environmental Affairs Group, Atlanta, Georgia.

The Final EIS should indicate if the project is consistent with the provisions of the Clean Water Act and Executive Order 11988; compliance with all applicable regulations (e.g., the Resource Conservation and Recovery Act) should be verified in the Final EIS; the Final EIS should identify the level of contamination tested compared with values on page 5-69 of the Draft EIS, identify uses of the river in proximity to the project, and summarize

Table II-1 (Continued)

appropriate mitigation plans to eliminate potential health hazards; an established groundwater monitoring program should be part of the proposed project; odor problems at the present facility should be mitigated before any expansion occurs; buffer zones, zoning ordinances, and adherence to regulations pertaining to operations should mitigate problems with odors; composted refuse is marketable today and should be considered as an alternative; the Final EIS should address impacts on local mosquito problems, associated potential health impacts, and appropriate mitigation plans;

Letter 3.	U.S. Department of Housing and Urban Development, Victor J. Hancock, Environmental Clearance Officer, Fort Worth, Texas. No Comments.
Letter 4.	U.S. Department of the Interior, Office of the Secretary, Raymond P. Churan, Regional Environmental Officer, Albuquerque, New Mexico. The selected plan is unacceptable from a fish and wildlife standpoint unless significant mitigation features are incorporated into the final project design; if mitigation measures are not made a part of the final project design, USDOI will refer the final EIS to CEQ; the US Fish and Wildlife Service, EPA, and COE should reevaluate the wetland determinations for this project; the experimental beneficial sludge reuse area should be leveed to protect wildlife resources as well as human health.
Letter 5.	U.S. Department of the Army. Corps of Engineers, Fort Worth District, H. Roger Hamilton, Chief Environmental Resources Branch, Fort Worth, Texas. Plans for wastewater treatment facilities should be provided to the Federal Emergency Management Agency so the flood insurance can be updated; project appears to be authorized under a nationwide general permit under Section 404 of the Clean Water Act provided certain conditions are met.
Letter 5a.	U.S. Department of the Army, Corps of Engineers, Fort Worth District, James C. Chandler, Acting Chief, Environmental Resources Branch, Fort Worth, Texas. Statement in previous letter (Letter 5) on applicability of nationwide 404 permit was incorrect; project will require authorization under Section 404 of the Clean Water Act and Section 10 of the River and Harbor Act of 1899.
Letter 6.	Fort Worth District Corps of Engineers, Allie J. Majors, Chief Operations Division, Fort Worth, Texas. The statement that 4.4 acres of wetlands would be destroyed does not agree with plans since not all wetlands will be destroyed; the statement on p. 1-12 should read ". . .Section 10 permit for any

Table II-1 (Continued)

work or structure in or affecting a navigable water."; it appears alternative groups 3, 4, 5, and 6 were dropped for political rather than environmental reasons, and if so, they should have been further evaluated; it does not appear Alternative 2 should have been dropped over concern for fugitive dust and odors from dedicated land disposal; Why did the City decide to go away from covering, scrubbing, and flow system improvement operations to chemical addition for odor control?; Who decides when the odor control is unsatisfactory and how will this decision be made?; How long would the people have to contend with high odor levels and how bad would the odor have to be before something is done?; How long would it take to accomplish any additional construction for odor control should it be needed?; It should be stated that a USCOE permit "will be required" instead of "may require"; An interconnection line to the TRA plant is mentioned but no location is given making impact analysis impossible; there is no discussion of impacts of the flood relief channel on the physical structure of the main channel of the West Fork; using words "would be" may lead people to believe covering facilities will be done, when City is saying they won't do it; since the City has no proposal to minimize activities in wetlands, it should be so stated; How would the proposed new channel provide a minor, beneficial amount of habitat for aquatic inhabitants?; The DEIS shouldn't imply that mitigation measures will be employed; the DEIS indicates construction impacts on aquatic biota will be short-term, but some aquatic habitat in wetlands and gravel pits will be destroyed; on p. 5-162 it is said that floodplain storage will be lost, it is more likely that an increase in flow volumes will result; there is no discussion of mitigation for lost wildlife habitat -- if the City has any proposals it should come forth with them so that they can be evaluated.

B. Texas State Agencies:

Letter 7. State of Texas, Office of the Governor, William C. Hamilton, Governor's Budget Director, Austin, Texas.

Comments from Texas State agencies enclosed; lack of necessary information on landfill design specifications, ultimate sludge reuse and comprehensive odor reduction measures.

Letter 8. State Department of Highways and Public Transportation, M.G. Goode Engineer - Director, Austin, Texas.

No Comments

Letter 9. Texas Air Control Board, Alex Ophelia, Jr., P.E., Deputy Director, Standards and Regulation Program, Austin, Texas.

Several aspects of the Fort Worth plan impact "nuisance" portion of the Texas Clean Air Act; Comments on the Draft EIS were provided in separate correspondence.

Table II-1 (Continued)

Letter 9a. Texas Air Control Board, Allen Eli Bell, Deputy Director, Control and Prevention Program, Austin, Texas.

We share this serious environmental concern (i.e., odors) and are pleased this is viewed as a key issue; It is our opinion that covering and air-scrubbing of the primary clarifiers will be needed to provide continuous maximum odor control; we recommend the existing treatment units be covered as soon as possible and new units built with covers; operational disruptions during expansion construction and the potential for associated odor-related problems are not discussed; in order to minimize the potential for nuisance odors, the sludge should be landfilled during any emergency condition; dewatered sludge should not be stockpiled but placed immediately in the landfill and covered; if stockpiling is elected, the outside areas should contain no more than 1 week's accumulation of dewatered sludge; improperly digested sludge should be landfilled immediately, and all drying and composting should take place within the allotted 10-acre site; sludge reuse experiments should be conducted on very small scales; the originally proposed grit removal facilities should be retained; no portions of Tarrant County are currently listed as non-attainment for particulate; the NAAQS for ozone is 0.12 ppm instead of 0.08 ppm listed on p. 5-78.

Letter 10. Texas Department of Health, David M. Cochran, P.E., Associate Commissioner for Environmental and Consumer Health Protection, Austin, Texas.

Future reuse of sludge for beneficial purposes, e.g., agriculture is not fully explained; Cadmium content may limit reuse opportunity.

Letter 11. Texas Department of Water Resources, Charles E. Nemir, Executive Director, Austin, Texas.

The type of sludge-landfill design to be used has not yet been specified; no decision on future NPDES permit limitations has been made by TDWR and EPA pending additional water quality and mathematical modeling studies; there is some doubt sludge reuses outside the leveed areas will be feasible and permissible under RCRA; TDWR determined that the WWTF is out of the floodway and no new application need be filed; if the ring levee for the existing sludge-drying beds is determined to be out of the 100-year floodway, TDWR will recommend dismissal as unnecessary pursuant to TDWR rule 315.1(F); the proposed 500-acre sludge disposal facility is under approval authority of the City of Fort Worth in the National Flood Insurance Program and p. 5-66 of the Draft EIS should be revised accordingly; further consideration should be given to the long-term benefits to the city, region, and state by the adoption of the SPF levee design criteria; odors can be reduced so as to be virtually undetectable if the facilities are properly designed and operated, and are not an "unavoidable adverse impact".

Table II-1 (Continued)

Letter 12. Texas Historical Commission, LaVerne Herrington, Ph.D., Deputy State Historic Preservation Officer, Austin, Texas.

Looks forward to any future consultation and coordination on this undertaking.

Letter 12a. Texas Historical Commission, LaVerne Herrington, Ph.D., Deputy State Historic Preservation Officer, Austin, Texas.

The project will have no effect on properties listed or eligible for listing on the National Register if Sites 41PR65 and 41PR66 are avoided; if buried cultural remains are discovered during construction, work should cease and appropriate Federal regulations should be followed.

Letter 13. Texas Parks and Wildlife Department, Charles D. Travis, Executive Director, Austin, Texas.

No apparent significant adverse impacts should result upon extant wildlife resources; this agency would prefer Alternatives 3 or 1, in that order, to avoid damages to wetlands.

C. Local Governments

Letter 14. City of Arlington, Ross B. Calhoun, City Manager, Arlington, Texas.

The EIS cannot adequately address the impact of odors and their control because the facilities plan is too general and does not define what the other effective methods are; when the plant is expanded, the clarifier should be covered and the air scrubbed with state-of-the-art scrubbing; what type of odor control measures will be practiced to eliminate problems arising in the stock pile area?; there seems to be a contradiction to the statement on p. 5-90, and proper mitigative measures included if stockpiling of sludge causes odor problems; all sludge should be deposited within the diked area and none in the floodplain; the plan should be amended to include air collection and scrubbing facilities now at all key odor producing locations; it is not clear whether other available odor control technologies were investigated in the facilities plan; the plan should be amended to include the total elimination of the existing sludge drying beds and the development of alternative emergency disposal measures; the potential for leachate from the unlined sludge drying beds is another reason for their elimination; we do not want co-disposal of sludge at the southeast landfill site; what specific measures are being taken to address problems with nuisance vectors in the future? What is the hydraulic capacity of Village Creek WWTF, 326 mgd or 255 mgd? The plan should ensure that the expanded plant will operate efficiently while critical units are being repaired, routinely or in an emergency; why has the plan preferred alternative not addressed grit removal at the beginning of the plant?

Table II-1 (Continued)

Letter 15. North Central Texas Council of Governments, William J. Pitstick, Executive Director, Arlington, Texas.

City of Arlington - the Final EIS should address specific odor control facilities and techniques, further definition of "emergency use" of sludge drying beds, covering the primary clarifiers, and removal from consideration of co-disposal at the southeast landfill site.

City of Kennedale - the proposed upgrading should ensure improvement in the environmental aspect of the area and should be approved.

City of Lake Worth - the proposed project is a public necessity.

City of Everman - No comments.

Haltom City - No comments.

City of Benbrook - No comments.

City of Forest Hill - No comments.

City of Saginaw - We recommend negative consideration of Alternatives 1, 2A, and 3 due to the disposal site location which would be adjacent to single family residential in our city.

Tarrant County Municipal Utility District No. 1 - This agency supports the plan described on pages 1-5 and 1-6 of the Draft EIS and do not feel that Alternatives 1, 2B, or 3 are acceptable.

City of Hurst - No comments.

City of North Richland Hills - No comments.

Town of Pantego - No comments.

City of White Settlement - Expansion of the Village Creek wastewater facility is vital to the entire region. Adverse environmental considerations are short-term, minor, and are not of significant impact.

City of Westworth Village - No comments.

D. Public Review

Letter 16. Texas Committee on Natural Resources, Edward C. Fritz, Chairman, Dallas, Texas.

The Draft EIS fails to consider the harmful effects of the preferred alternative on the recreational potential of the West Fork of the Trinity River; the Draft EIS also fails to evaluate the potentialities for land treatment of partially treated wastewater.

Table II-1 (Continued)

Letter 17.	First City National Bank of Fort Worth, Martin C. Bowen, President and Chief Executive Officer, Fort Worth, Texas. The proposed project (Alternative 2B) will provide adequate sewage treatment capacity in an environmentally safe manner. I strongly urge you to support Alternative 2B.
Letter 18.	Thomas S. Byrne, Inc., James N. Patterson, Jr., Chairman of the Board, Fort Worth, Texas. Alternative 2B is a very good solution to the problem from both an environmental and costs standpoint. I strongly support it.
Letter 19.	Thomas S. Byrne, Inc., A.T. Seymour, III, President, Fort Worth, Texas. Alternative 2B is a good solution to the plant expansion from all aspects and I strongly urge you to support it.
Letter 20.	Star Rental Services, Ronald L. Cohen, President, Dallas, Texas. We endorse the adoption and implementation of the City of Fort Worth's proposed project (Alternative 2B).
Letter 21.	League of Women Voters of Texas, Georgia Kidwell, Austin, Texas. Fort Worth is to be commended for significant recent improvements in the operation of the Village Creek plant and the quality of its effluent; additional treatment capacity is urgently needed if these gains are to be maintained and if further improvements are to be achieved; the value of sludge as soil additives is an estimated one million dollars per year, yet the primary method proposed for handling future sludge is burial in a sludge-only landfill; what would be the costs and impacts of sludge-disinfection to allow continued use of the sludge as a soil conditioner for public lands?; what benefits in effluent quality could be achieved by more stringent pretreatment requirements and what would costs be to the industries?; the project schedule should be strictly followed or, if possible, accelerated, to assure continued improvements in the quality of water in the West Fork and the Trinity River.
Letter 22.	Trinity Improvement Association, Russell H. Perry, President, Irving, Texas. The no action alternative does not merit serious consideration; Alternative 2B offers the most practicable solution; the time has arrived when plant capacity must be increased.

Table II-1 (Continued)

Letter 23. Stephen J. Geronimo, Arlington, Texas.

I am completely opposed to the use of taxpayer's funds to expand the Village Creek sewage plant; funds could be better used to divert flows to the TRA plant, reactivate the Riverside WWTP, and construct a new plant in an environmentally acceptable area and establish a park or greenbelt on the old Village Creek sewage plant site.

Letter 24. William O. Daniel, Cleburne, Texas.

Many landowners are very strongly opposed to Alternative 3; we were advised there would be no sludge and no need for lagoons and when we investigated further we found out different; the landowners would have to have control of any and all application of effluent in order to secure maximum growth and proper harvesting of said crop; Considering the additional costs, it would not be regained by a higher yield of crops in our area; if 65 more inches (of water) were applied we could possibly lose our entire crop and the City of Fort Worth would have to be responsible for any crop or land damages; a residence approximately 1/10th of a mile east of the proposed site would be drastically affected by any adverse conditions and was left out of the study; any reduction in water flowing through the Nolan River would affect Lake Pat Cleburne, the City of Cleburne's main source of water; milk from dairy cattle grazing on lands treated by wastewater would not be allowed to be sold for human consumption and several dairies would be closed because of this proposal; Godley I.S.D. would lose taxable property and the plan would have a drastic downward effect on land prices in our area.

Letter 25. Richard P. Scaling, Fort Worth, Texas.

I strongly recommend the plan to enlarge and update the Village Creek plant be approved as the best solution to the present problem.

Letter 26. William R. Anderson, Jr., Cleburne, Texas.

Selection of Alternative 3 would have a definite adverse economic impact by prohibiting the development of the remainder of their land; it could restrict the development of 328 acres sold to Highcrest Estates, Inc.; it will have an economic impact on Johnson County and Godley I.S.D. because of the reduction of property values, halting and/or restricting development and removal of property from tax rolls; it will indirectly adversely affect retail merchants in Godley, Cleburne, Joshua, Crowley, and Burleson if land isn't developed; landowners no longer are willing to enter into signed contracts and the Commissioner's Court of Johnson County has withdrawn their support; this would possibly have an effect on the water supply system for the City of Cleburne.

Table II-1 (Concluded).

Letter 27. George M. Cloyd, P.E., Arlington, Texas.

What is the governing authorities' position regarding enforcement of current regulations before expansion plans are implemented?; what will be the environmental effect if expanded facility has problems meeting its effluent limit?; what will the percent of industrial loading be at the expanded facility and how will this percentage affect grant eligibility and user rates?; will new aeration basin, clarifiers, and filters required for facilities to meet discharge permit be grant elibible?; why has City eliminated grit removal before primary clarification?; why has City eliminated covers and scrubbers as a primary means of odor control?; what would constitute an emergency condition which would allow use of the existing drying beds?; the statement that the City selected Alternative 2B after review of four final alternatives and input from the CAC and public is incorrect - the City, staff, and consultants selected this alternative after the 6 July 1982 public meeting in which only three alternatives were presented; what are the environmental consequences of stockpiling sludge?; does the City of Arlington's dike around its landfill present a flood problem that needs to be mitigated?; what are added costs of implementing wasteload allocation 5/5/3 on Alternatives 2B and 3?; Final EIS should include data to verify, that until recently, the Village Creek plant has not consistently produced a 10/15 effluent; Final EIS should show area map of odor effects using chemicals versus covers for various seasons, wind velocities and directions; what is the amount of power consumed by the sludge process of Alternative 2B?; compare probability of satisfactory odor control from chemical addition versus state-of-the-art air collection and scrubbing.

C. RESPONSES TO COMMENTS

For all comments which presented substantive questions or disagreements about the content of the Draft EIS, EPA has included a written response. The complete comment letters with EPA's responses are presented in Appendix A. A complete transcript of the public hearing is available for review at the depositories listed in the transmittal letter.

From all the comments received, five general issues were of particular interest to those commenting on the Draft EIS: Control of odor from existing and proposed facilities; sludge disposal; fish and wildlife resources; land treatment; and design of treatment facilities. Specific aspects of each of these issues are addressed below.

ISSUE 1. ODOR FROM THE VILLAGE CREEK WASTEWATER TREATMENT PLANT AND PROPOSED FUTURE FACILITIES. As discussed in the Draft EIS, odor has been the central issue surrounding the City of Fort Worth's proposal to expand their wastewater treatment system. Many comments at the public hearing, and comment letters received subsequently, raised questions about odor problems with existing and proposed future facilities.

Issue 1a. Some commentors stated odor control by chemical addition alone has proven ineffective, yet the City proposes to continue this method even after expansion of the plant. Many believe a comprehensive odor control plan should be developed with covering of key odor sources and scrubbing of exhaust air from those sources included in the plan.

Response to Issue 1a. The City of Fort Worth contracted with Alan Plummer and Associates, Inc. and Malcolm Pirnie (APAI/MP), a joint venture, to conduct a comprehensive odor control study at the Village Creek WWTF. The contractor completed the first portion of the study and submitted recommendations for short-and long-term odor control measures to the City. The City has incorporated the measures into their wastewater treatment facilities plan.

A summary of the conclusions and recommendations made by APAI/MP, including discussion of the action taken by the City of Fort Worth is included in Appendix B of this Final EIS.

Issue 1b. The sludge drying beds are a major source of odor from the plant. The City of Fort Worth proposes to use them only for "emergencies", but "emergencies" are not defined. The City should eliminate the sludge drying beds altogether. Sludge should be landfilled during emergency situations. If the sludge drying beds are retained, a definition of "emergency conditions" should be addressed in the Final EIS. The beds also should be lined to protect groundwater from potential leachate.

Response to Issue 1b. The City of Fort Worth proposes to retain most of the existing sludge drying beds to use as a backup for sludge dewatering in emergencies. Approximately 39 acres of the sludge drying beds on the northwest corner would be removed to contribute to maintaining acceptable river hydraulic conditions.

Since wastewater treatment is a continuous processing operation, the City of Fort Worth believes it is advantageous to have as much backup as reasonably possible for unit operations. The existing sludge drying beds would serve as a backup to the proposed mechanical sludge dewatering and sludge disposal operations.

A certain amount of backup is included in most of the existing and proposed treatment process unit operations to compensate for peak flow conditions and routine maintenance. Therefore, backup sludge capacity for emergencies, which could be used before the drying beds would be needed, does exist. The City of Fort Worth proposes to use all of these backup capabilities before using the existing sludge drying beds. A detailed description of the sludge backup capabilities of the existing and proposed Village Creek WWTF is included in Appendix C of this Final EIS.

An emergency situation would exist when sludge flow at the Village Creek WWTF exceeds the capacity of the proposed expanded system including its backup capabilities. Based on past performance and anticipated future flows, the City of Fort Worth projects emergency use of the existing drying beds to be necessary an average of one period per year. Since the sludge drying beds would be used so infrequently, the City should be able to restrict use to those beds farther away from residences. Use should be restricted to two to three beds. This would help reduce the impact of any odors which might be generated. In addition, the City has obtained a machine - called a "Brown Bear" - with a horizontal, auger attachment, for the purpose of enhancing the dewatering of sludge in the drying beds (see response to Issue 2i). Normal drying time should be reduced by two-thirds with use of the "Brown Bear". This equipment could be used, if necessary, during any emergency use of the sludge drying beds to reduce drying time and reduce the potential for odors being generated from the sludge.

With regard to further protection of groundwater (via "lining") during any emergency use of the existing sludge drying beds, it is believed that given the projected infrequent use of the beds and the existing and proposed operational changes, no adverse impacts to groundwater would occur. The sludge drying beds are underlined with a pump-back system to the Village Creek WWTF. Under any emergency use conditions (as discussed above), it is estimated that only 2-3 drying beds would be used. In addition, at these times of emergency use a Brown Bear auger would be available to accelerate the sludge drying time as described in the previous paragraph.

Issue 1c. Control measures which will be practiced to reduce odors arising from the sludge stock-pile area should be presented. Also, Fort Worth proposes to conduct sludge beneficial reuse programs which would involve depositing sludge in the Trinity River floodplain. To reduce the potential for significant odors from these operations some stated that all sludge should be deposited within the diked area. Others said odor control measures should be developed for any sludge deposited in the floodplain. Pilot reuse projects should be conducted on a small scale.

Response to Issue 1c. Sludge would not be stockpiled for further drying after mechanical dewatering as originally identified in the Draft EIS. Field test results indicated that this drying method was not practical. The majority of the dewatered sludge would initially be landfilled. Dewatered sludge would be hauled to the disposal site and placed in the sludge only landfill in which the ratio of sludge to soil would be approximately 1:1.5. The landfilled sludge would be covered daily for odor and vector control. A portion of the dewatered sludge would be composted. This sludge would be mixed on a concrete pad covered with a roof. Composting would be performed by the static pile method which requires pulling air through the compost piles initially. This air would be exhausted through a finished compost pile for odor control. During periods of wet weather, the sludge would either be composted, stored within sludge storage tanks, or landfilled.

Beneficial reuse projects in the Trinity River floodplain would be relatively small scale. The total area being considered for land application of sludge is approximately 30 acres and it is likely that not all of this area would be used at any one time. Potential for odors from the reuse operation does exist. However, the City of Fort Worth would be required to incorporate sludge into the soil whenever it is applied to the land. This would reduce considerably the potential for odor during flood conditions.

Issue 1d. Odor problems which exist at the present facility should be mitigated to the extent possible before any expansion. Odors and aerosols should be monitored to ensure effective control methods. Buffer zones should be provided through appropriate zoning.

Response to Issue 1d. Fort Worth and EPA also agree that odor problems should be corrected to the extent possible before expansion. The City of Fort Worth has made many improvements and modifications to the Village Creek WWTF over the past 2-3 years in an effort to reduce odor problems. The City has also improved its operation and maintenance of the facility to help alleviate such problems. Examples of the City's activities which have been completed include:

- Doming of primary sludge thickeners;
- Covering of detritors;
- Covering of raw sewage channels;
- Enclosing of bar screens of the previous 51 mgd expansion;
- Enclosing of cyclone grit removal units;
- Enclosing of centrifuge system;
- Installation of deodorant spray systems;
- Installation of chlorine spray system on primary clarifiers;
- Enclosing of old bar screens and scrubbing of exhaust air;
- Replacement of the two square final clarifier sludge collection mechanisms;
- Repairing damaged roofs on some sludge digesters;
- Insulating boiler to ensure adequate hot water for sludge heating in the digesters.

Activities which are planned or in some stage of completion include:

- expanding bar screen building to enclose the screening collection portion;
- Constructing a concrete pad and washing facilities for grit hoppers;
- Repairing damaged roofs on sludge digestors 1 and 2;
- Modifying scum pump box operation.

As a part of its continuing effort to reduce odors at the Village Creek WWTF, the City of Fort Worth hired consultants to conduct a comprehensive odor control study and to develop recommendations for both short-term and long-term measures to reduce odors and to prevent as many odor problems as possible in the future. The City has reviewed those recommendations and included them in their facilities plan for upgrading and expansion of the wastewater treatment system. A summary of the conclusions of the odor control study and the measures proposed to be adopted as a result are included in Appendix B of this Final EIS. The measures proposed include plans for monitoring for odors and aerosols as well as addition of facilities and appropriate operation and maintenance to reduce odors.

The Village Creek WWTF is located at the confluence of Village Creek and the Trinity River just within the Fort Worth city limits. Developed areas are located about 1 mile to the west of the facility. The current land use plan for the City of Fort Worth calls for park and open space in the area between Village Creek and existing development in east Fort Worth. However, this area was recently rezoned for residential apartment and medium density development. Plans for development have not been received by the City.

The Fort Worth Water Department has made a recommendation to the Fort Worth Planning Department that an adequate buffer zone be maintained in Fort Worth's jurisdiction adjacent to the Village Creek WWTF (see memo dated 9 November 1983 from Richard W. Sawey to James Toal in Appendix H).

Developed residential areas within the city limits of Arlington are located south and east of the Village Creek WWTF. Residences are within approximately 1/4th mile of the main part of the plant and approximately 1/10th mile of the existing sludge drying beds. Land directly east of the facility is zoned for industrial development. The City of Arlington plans to construct a segment of Green Oaks Boulevard, a major east-west thoroughfare, just south and east of the plant.

Past zoning decisions in the City of Arlington have allowed extensive residential development adjacent to the Village Creek WWTF. Numerous residences exist in the area now and it would not be appropriate to second guess those past decisions in this EIS. Also, future zoning actions in the City of Arlington are outside the jurisdiction of the City of Fort Worth. However, the City of Fort Worth, as well as EPA and the USCOE encourage Arlington to assist in maintaining an appropriate buffer next to the Village Creek WWTF, where possible, through its zoning authority.

Issue 1e. Operational disruptions during expansion construction should be discussed in light of the potential for associated odor-related problems. Procedures for continuing orderly operations during construction should be specified.

Response to Issue 1e. Several operation and maintenance problems occurred during the last expansion of the Village Creek WWTF. The last expansion, however, more than doubled the preceding capacity at the plant. The expansion proposed in the current facilities plan would be: (1) smaller in actual capacity; (2) a much smaller relative total increase in capacity; and (3) accomplished in phases, which would result in a still smaller relative increase in capacity at any one time. Therefore, the proposed expansion should have less effect on daily operation of the plant.

Operation and maintenance at the Village Creek WWTF has improved considerably over the past 3 years. Also, the City of Fort Worth would develop a plan for construction which would ensure the most orderly operation and maintenance during that period.

Issue 1f. Grit removal facilities were originally proposed ahead of the primary clarifiers to reduce maintenance problems. The Final EIS should address why these facilities are no longer proposed.

Response to Issue 1f. The City of Fort Worth believes the major reason for poor grit removal at the Village Creek WWTF was related directly to operation and maintenance. The City thoroughly evaluated aerated grit removal systems as well as the existing cyclones and determined grit could be removed as efficiently by retaining the cyclones and improving the operation and maintenance. Incorporation of aerated grit removal units would be difficult because of limited space and head for gravity flow.

The cyclone grit removal system was designed to be operated automatically based on the density of the sludge and the pressure in the system. However, the cyclones were not being operated according to design. Also, some of the control instrumentation was not functional and certain parts needed repair.

The City of Fort Worth believes the existing grit removal system will operate properly with adequate operation and maintenance. Enough room is available to add units to handle projected design flows. The City also plans to enclose all grit conveyance and collection operations by extending the existing building. All exhaust air from these operations would be scrubbed. These improvements will provide better odor control for these operations.

Issue 1g. Odors can be reduced so as to be virtually undetectable if facilities are properly designed and operated. Odor should not be an "unavoidable adverse impact".

Response to Issue 1g. With proper operation and maintenance of a well designed wastewater treatment facility, odors can be held to a minimum. However EPA's assessment of the proposed action is that some odor would be detectable from time to time from even the best run facilities resulting in an unavoidable adverse impact.

ISSUE 2: SLUDGE DISPOSAL. Several commentors questioned certain elements of the sludge disposal plan.

Issue 2a. The City of Arlington strongly opposes the City of Fort Worth's southeast landfill as a site for co-disposal of sewage sludge with municipal refuse. Landfilling of sludge in the southeast landfill could adversely affect Lake Arlington, the water supply for the City of Arlington.

> Response to Issue 2a. The City of Fort Worth does not plan to use the southeast landfill as a site for co-disposal of sewage sludge with municipal refuse. That possibility is no longer a part of the Fort Worth wastewater treatment facilities plan.

Issue 2b. Landowners in the target area (north of Fort Worth) identified for sludge disposal under Alternatives 1, 2A, and 3 are opposed to use of that area for any sludge disposal alternative.

> Response to Issue 2b. The City of Fort Worth does not plan to dispose of sludge in any of the target areas identified for Alternatives 1, 2A, or 3. The City's preferred alternative is to dispose of sludge in a sludge only landfill in the Trinity River floodplain north of the existing Village Creek WWTF while experimenting with beneficial reuse of sludge for future consideration. However, as part of the future beneficial reuse program, landowners in the target areas mentioned above may elect to use Fort Worth's sludge.

Issue 2c. The City of Fort Worth's proposed sludge disposal landfill site is located in the Trinity River floodplain and would impact Trinity River wetlands. Executive Orders 11988 and 11990 direct Federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and the destruction and modification of wetlands and to avoid direct or indirect support of floodplain and wetland development wherever there is a practiciable alternative. All construction in the 100-year floodplain must be in compliance with the City's floodplain management ordinance. No encroachment is allowed within the floodway that will result in any increase in flood levels in Fort Worth during occurrence of the base flood discharge.

> Response to Issue 2c. The Draft EIS includes detailed information about potential impacts to floodplains and wetlands which could result from implementation of the preferred alternative of the City of Fort Worth (see Sections 5.3 and 5.5 of the Draft EIS). Detailed information about the development and evaluation of alternatives, including those for sludge disposal is presented in Chapter 4 of the Draft EIS. Appendix E of this Final EIS includes a Floodplain/Wetland Notice which summarizes the following:
>
> (1) The reasons why the proposed action must be located in or affect floodplains and wetlands;
> (2) Significant facts considered in making the decision to locate in or affect the floodplain and wetlands including alternative sites and actions;
> (3) A statement indicating that the proposed action conforms to applicable state and local floodplain protection standards;
> (4) Steps taken to design or modify the proposed action to minimize potential harm to or within the floodplain or wetlands; and

(5) A statement indicating how the proposed action affects the natural or beneficial values of the floodplain and wetlands.

The City of Fort Worth submitted detailed information about their proposed sludge disposal facilities to the Federal Emergency Management Agency (FEMA) for review and approval. In a letter dated 7 November 1983 (see Appendix H of the Final EIS), FEMA advised the City that they "believe that the 100-year flood elevations by the Corps of Engineers for existing and encroached conditions will not increase as a result of the proposed construction and alternate floodway configuration." Therefore, based on the mitigation proposed by Fort Worth, the encroachment which would occur would not result in any increase in flood levels in Fort Worth during the occurrence of the base flood discharge. FEMA also advised the City that the current Flood Insurance Study must be revised upon completion of the proposed modifications. The City would follow the specified procedures at the appropriate time.

The construction proposed by the City of Fort Worth for the sludge disposal facilities would be in compliance with the City's floodplain management ordinance. Under state law, the proposed facilities are under the approval authority of the City of Fort Worth by virtue of the City's participation in the National Flood Insurance Program and the authority contained in Section 16.236(d)(3) and (f) of the Texas Water Code (see Appendix A, Letter 11 from TDWR, page 2). Therefore, a levee permit does not need to be obtained from TDWR.

Issue 2d. Many commentors addressed the potential for beneficial reuse of sludge generated by the Fort Worth wastewater treatment system. In comparison to the proposed sludge-only landfill, what are the costs and environmental impacts of using the sludge as a soil conditioner or for other beneficial uses? If the City of Fort Worth plans to develop a program it should be developed and approved before funding occurs. Some commentors encouraged the implementation of a beneficial sludge reuse program.

Response to Issue 2d. Sludge reuse was investigated thoroughly in the development of the facilities plan and EIS (see Sections 4.4.5, 4.5, and 4.6 of the Draft EIS). Three of the final alternatives included reuse of sludge by land application as the primary method of final disposal (see Section 4.7 of the Draft EIS). The alternative proposed by the City of Fort Worth includes a provision for some sludge reuse and the City hopes to develop an extensive reuse program in the future.

The City of Fort Worth believes that significant interest in reusing domestic sewage sludge exists in the Fort Worth area. However, an extensive program would not be practicable at the present time because of costs, lack of marketability, and general lack of public acceptance. Therefore, the City proposes to landfill sludge for the 20-year planning period in order to discontinue use (other than for emergencies) of the existing sludge drying beds.

Over the design life of the proposed sludge-only landfill, Fort Worth would conduct an experimental program for reuse of the sludge. Sludge would be applied to all or portions of a 30-acre tract of land that Fort Worth owns just southeast of the Trinity River and directly north of the

Village Creek WWTF. Sludge would be disced or injected into the soil and crops would be grown. Also, a small amount of sludge would be composted to use in the development of a beneficial reuse program. EPA would require the City to present plans for any program to TDWR and/or TDH, as appropriate, for approval before implementation. The City would be required to comply with appropriate Federal and state regulations for land application of sewage sludge.

Issue 2e. Compliance with the Resource Conservation and Recovery Act (RCRA) for beneficial reuse activities in the floodplain should be verified in the Final EIS. RCRA regulations may limit certain activities in the floodplain. Sludge containing bacteria and toxic materials could cause significant adverse effects if washed downstream during major flood events. Reuse may be limited because of the cadmium content of the sludge.

Response to Issue 2e. Criteria for the Classification of Solid Waste Disposal Facilities and Practices (40 CFR Part 257) were developed in accordance with Sections 1008(a)(3) and 4004(a) of the Resource Conservation and Recovery Act (RCRA). Any land application activity must meet the provisions in the criteria for surface water, groundwater, disease, endangered species, safety, floodplains, air, and foodchain crops. Sewage sludge can be applied to soils in floodplains provided the operation does not:

(1) Cause the restriction of base flood waters (100-year flood);
(2) Reduce the temporary water storage capacity of the floodplain; or
(3) Result in the washout of the sludge (EPA expects that if sludge is applied to the surface and incorporated into the soil, and if vegetation is grown, the requirements should be satisfied).

The City of Fort Worth proposes to incorporate the sludge into the soil (most likely by discing) and to grow various crops as a part of its beneficial use program. This would comply with the regulations.

Operations which involve the land application of sludge must avoid the contamination of underground drinking water sources beyond the solid waste boundary. Sludge must be applied so that it does not cause the concentration of cadmium, nitrate, or any other specified inorganic or organic substance in the groundwater to exceed established maximum contaminant levels presented in Appendix I of 40 CFR Part 257. Regulations in 40 CFR 257.3-5 also present limitations for application of sludge containing cadmium to land used for the production of foodchain crops.

Finally, the state of Texas has proposed regulations (25 TAC Sections 325-461 and 325-465) under the Texas Solid Waste Disposal Act for the land application of municipal sludge for beneficial use. These regulations would generally require that land application of sludges be conducted so that: (1) contamination of groundwater is avoided; (2) no runoff occurs beyond the active application area; and (3) the quality of surface water and soils in the unsaturated zone is protected among other things. The City must comply with these and other Federal, state and local requirements or discontinue the land application of sewage sludge.

Issue 2f. Toxic sediment washouts from the flood relief channel may occur during flood events. Materials could be released during construction of the flood relief channel. This could cause adverse water quality effects downstream. Mitigation plans to eliminate potential health hazards should be developed.

> Response to Issue 2f. During construction, disturbance of bottom sediments in the Trinity River and adjacent floodplain would cause a release of heavy metals and nitrogen contained in the sediment. However, the high concentrations of heavy metals and nitrogen currently present in the sediment are located downstream of the Village Creek WWTF and are apparently due to discharges from the facility. Following construction, levels of contaminants would return to the ambient range and aquatic life should return to preconstruction population levels. Impacts related to the construction of the channel should be minor and short term. During flood events toxic substances may be redeposited in the flood relief channel. However, this deposition would be no greater than under previous circumstances. Also, the City of Fort Worth has developed mitigative measures that would be performed during and following construction to control the loss of soil and bottom sediments from the flood relief channel as well as other disturbed areas. These mitigation plans are contained in the City's Section 404 permit application to the Corps of Engineers which is included in Appendix D of this Final EIS. An area maintenance plan also would be prepared by the City which specifies maintenance activities (including frequency, responsible officials, etc.) which would be performed in order to maintain acceptable erosion control over the long-term. This plan would have to be submitted to FEMA for review and approval.

Issue 2g. There should be a discussion of the impact that the flood relief channel would have on the physical structure of the main channel of the West Fork of the Trinity River.

> Response to Issue 2g. After construction, the water level in the relief channel would be allowed to fluctuate with the water level of the Trinity River during high flow stages. The bottom elevation of the flood relief channel would be 460.0 msl. However, where the existing ground line is lower than 460.0, because of gravel mine operations, these deeper pools would be preserved as much as possible consistent with construction requirements. The only change to the physical structure of the main channel would be the filter material and stone rip-rap to be placed on the western bank and bottom of the Trinity River for erosion control (see Figure 4 in Appendix D of the Final EIS).
>
> Soil/sediment contributions during relief channel construction should be of short duration, and would decrease as erosion mitigation procedures take effect. Bermuda grass sod would be used where immediate erosion control is needed, e.g., if storm event occurs during the construction period. As rip-rap installation proceeds, erosion losses from the relief channel mouth area will diminish markedly. Once vegetation has been reestablished in the floor of the relief channel, potential erosion from this source should approach naturally occurring soil loss rates.

Erosion resulting from flows decending the rip-rap slope at the relief channel mouth should be minimal or non-existent. Any flows exiting the channel mouth and flowing down the rip-rap would meet decreasing but still high river flows such that, during storm events capable of producing overflow into the relief channel, the maximum 20-foot drop (river dry) would be considerably reduced, ultimately to 0.0 feet at a river surface elevation of 460.0 feet msl. At this point, the relief channel would constitute a tributary to the main channel. During flood events, the bank opposite the downstream limit of the flood relief channel would be subject to impact flows which might cause turbulence and erosive action. Appreciable flows from the relief channel during low river flow periods should never occur, therefore, no significant physical changes are anticipated during the operation (i.e., functioning) of the flood relief channel.

Issue 2h. A monitoring program is needed to ensure prevention of contamination of groundwater.

Response to Issue 2h. The City of Fort Worth is developing a groundwater monitoring program for the proposed sludge landfill. As a part of the plan, five 4-inch monitoring wells would be drilled along the periphery of the sludge disposal site on the north side of the Trinity River (see new Figure 4-14a in Part III of the Final EIS). The exact location of the well on the east side of the site would depend on the direction of the groundwater flow. Each well would penetrate the gravel layer below the clay liner and would be located outside the berm. Groundwater would be monitored at two different depths. The wells would be permanent installations and would be sampled quarterly. Exact locations and depths would be determined after all test borings are completed.

Groundwater monitoring wells would also be drilled at appropriate locations around the site of the proposed beneficial reuse area if required. Exact locations would be determined when the operation is designed. The land application plan must be approved by the Texas Department of Health.

Issue 2i. Additional information should be provided on impacts, potential health effects, and mitigation plans related to the control of nuisance vectors, i.e., flies and mosquitoes.

Response to Issue 2i. Problems with nuisance vectors, i.e. flies and mosquitoes should be reduced with the implementation of the City of Fort Worth's proposed alternative. Mosquito generation sites (standing water) in the sludge drying beds would be reduced by elimination of every day use of the beds. Discontinued use of the sludge drying beds, except for emergencies, should also result in a reduction in fly breeding sites. Those sites are formed when the sludge dries on top to form a crust and then cracks to provide a place attractive to flies to lay their eggs. Sludge at the new landfill site proposed by the City of Fort Worth would be covered daily to reduce the potential for insect breeding in the future in that area. In addition, the City would include as a part of their program: (1) immediate cleanup of any spills; (2) cleaning of out-of-service basins; and (3) prevention of ponded water in all areas of the plant. The City would maintain trained and licensed pesticide applicators and adequate equipment to apply pesticides for any problem that should arise. The Fort Worth Health Department would be available as a backup to provide assistance in vector control.

The City of Fort Worth has already made efforts, with considerable success, to reduce the insect problems at the Village Creek WWTF. The City plans to continue this program for the existing facilities.

The City leased a piece of equipment with a horizontal auger attachment known as a "Brown Bear", to be used to enhance the dewatering of sludge in the drying beds of the Village Creek WWTF. After use of the "Brown Bear" for 5 months, the City estimated normal sludge air drying time was decreased by two-thirds. Use of the "Brown Bear" was initiated just after the time when flies would hatch from eggs in the drying beds. Use of the "Brown Bear" to mechanically turn the beds apparently reduced the fly problem considerably. Because of their success with the "Brown Bear" the City has since purchased one for use at the Village Creek WWTF. Use of the "Brown Bear" in the interim until new sludge dewatering and disposal facilities are constructed should enable the City to control fly problems during that period.

The City also believes that the "Brown Bear" may be appropriate for use with mechanical dewatering facilities in the future. It may be used to further dry dewatered sludge, to mix dewatered sludge with soil before landfilling, or to mix the sludge in a composting process before beneficial reuse.

ISSUE 3 - FISH AND WILDLIFE RESOURCES. Some commentors indicated that the proposed sludge disposal plan would have significant adverse effects on fish and wildlife resources, and the City of Fort Worth should incorporate measures into their plan to minimize these impacts.

Issue 3a. Fish and wildlife resources will be adversely affected by implementation of the proposed sludge disposal plan. However, no mitigation for the losses of wetlands, bottomland timber and other fish and wildlife is provided.

Response to Issue 3a. The City has adopted a fish and wildlife mitigation plan after consideration of recommendations provided by the COE, USFWS, and SCS. This plan includes specific measures to be implemented during construction and operation of the sludge disposal and related facilities.

For the flood relief channel, the plan includes measures to help minimize disturbance of aquatic habitat. The existing aquatic habitat will be maintained within the flood channel as far as reasonably possible. In addition, the banks, slopes, and flat areas will be revegetated to help control erosion and restore some wildlife values in disturbed areas.

New floodplain habitat will result from relocating the levee of the existing sludge drying beds. The area returned to the floodplain (about 39 acres) will be graded such that there is little or no slope and it will be periodically inundated with water. Thus, the potential for wetlands forming at this location would be enhanced. To improve the habitat potential, this area will be revegetated with species recommended by the SCS which have high value for wildlife. The new levee will be planted with bermuda grass for erosion control.

Vegetation in the beneficial reuse area is primarily grassland with a narrow strip of bottomland forest adjacent to the Trinity River. This combination of forested and open areas provides edge habitat valuable to wildlife. To preserve this resource, an undisturbed area including the forested area along the river plus a 20-foot strip of grassland between the trees and the beneficial reuse area will be left in its natural state.

The area designated as F on Figure 1 of the Section 404/10 permit application (see Appendix D) may be partially disturbed as a result of construction of the flood relief channel. However, this impact will be minimized as much as possible and the disturbed areas will be revegetated to improve erosion control and wildlife values. Also, the City of Fort Worth has agreed to allow the University of Texas at Arlington and Texas Christian University to use areas F and G for various wildlife studies for the life of the sludge-only landfill project (estimated to be 20 years)

Another mitigation item would be the use of 83 acres at the Riverside WWTP donated to the Park and Recreation Department for development of the Gateway Park. The master plan for this park was developed for the Streams and Valleys Committee and provides a unique opportunity along the West Fork of the Trinity River for recreation activities. Additional specific details on the proposed revegetation measures are included in the City of Fort Worth's Section 10/404 permit application in Appendix D of this Final EIS.

Issue 3b. An experimental sludge reuse program is proposed in an area outside the proposed levees. Sludge containing bacteria and toxic materials could be washed downstream during major flood events, thereby posing major hazards to aquatic and some terrestrial species.

Response to Issue 3b. See response to Issue 2e. With the incorporation of sludge into the soil and growing of crops on land to which sludge is applied, washout of sludge should not occur. Therefore, significant impacts to aquatic and terrestrial species from bacteria or toxic materials should not occur.

ISSUE 4: DESIGN OF LIQUID TREATMENT FACILITIES. Any expansion of the Village Creek wastewater treatment plant should be designed so that the plant will operate efficiently while critical units are down and being repaired, either routinely or in emergency situations.

Response to Issue 4. Expansion of the Village Creek WWTF would be designed according to criteria of the EPA and TDWR. These criteria include appropriate consideration for backup systems for routine or emergency breakdowns. The City of Fort Worth would design its system to include appropriate backup capabilities.

Provisions for handling high flows have been included in improvements proposed by the City of Fort Worth in Phase I-A. The design criteria which would be utilized in the plant expansion are different from the criteria used in the design of the previous expansion. The staff of the

TDWR is reviewing what effect this revision would have had on the original design. Additional units proposed at the plant to handle existing peak flows may be eligible for grant participation if necessary to meet the design criteria used for the current proposal.

The City of Fort Worth believes the facilities plan proposes enough new Dissolved Air Floatation (DAF) unit capacity to cover down time for centrifuges. If all DAF units are included, centrifuges could be used for standby waste activated sludge (WAS) thickening. The City believes that operation and maintenance of the centrifuges has been vastly improved from the initial years of use. Centrifuge down time has decreased significantly during 1983.

ISSUE 5: LAND TREATMENT OF WASTEWATER. Some commentors raised questions about land application in general and the viability and implementability of Alternative 3 which would involve the application of 41 mgd of wastewater by slow rate irrigation to approximately 8,460 acres of farmland in Johnson County.

Issue 5a. Commentors stated that many Johnson County landowners are opposed to the land application alternative.

Response to Issue 5a. The City of Fort Worth currently does not plan to construct Alternative 3 mainly because of costs and concerns about the implementability of such a large scale land application operation in the area considered in Johnson County. Specific comments about various aspects of Alternative 3 are addressed in responses to letters 24, 25, and 26 in Appendix A of this Final EIS.

Issue 5b. The Draft EIS fails to adequately address the alternative of land treatment of wastewater.

Response to Issue 5b. Land treatment of partially treated wastewater was evaluated thoroughly in the facilities planning and EIS processes. Preliminary alternatives evaluated in the process were divided into 19 groups (see Table 4-17, page 4-57 of the Draft EIS). Eleven of these groups included land treatment of wastewater to some extent. Different methods of land treatment, i.e., slow rate irrigation, overland flow, and rapid infiltration were included in this evaluation of preliminary alternatives. Detailed descriptions of the treatment processes considered can be found in "Broad Scale Alternatives for Initial Screening for the Fort Worth 201 Facilities Plan" prepared by Camp, Dresser and McKee, Inc. This document is available for review at the information depositories listed on page 6-5 of the Draft EIS.

Upon completion of the evaluation of preliminary alternatives, seven alternative groups were retained for further consideration (see pages 4-66 through 4-67 of the Draft EIS). Four of these groups included land treatment components utilizing either the slow rate irrigation or overland flow concepts. Fifteen intermediate alternatives were developed from the seven preliminary alternative groups, eight of which included land treatment (see Section 4.6.1 of the Draft EIS).

The 15 intermediate alternatives were analyzed using both engineering and environmental criteria (see Section 4.6.3 of the Draft EIS). Detailed information (including evaluation of land treatment alternatives) is contained in a report entitled "Draft Environmenal Screening of 15 Intermediate Alternatives" prepared by WAPORA, Inc. This report is also available for review in the project depositories referenced above.

After thoroughly evaluating the intermediate alternatives, three alternative groups were retained for detailed evaluation (see page 4-80 and following paragraphs of the Draft EIS). One of these final alternatives included land treatment of wastewater by slow rate irrigation on farmland in Johnson County. Detailed engineering cost and environmental factors for all of the final alternatives including land treatment are provided in the Draft EIS.

The City of Arlington and its consultants, including Sheaffer and Roland, Inc. and Agro-City developed information on the feasibility and environmental impact of land treatment of municipal wastewater. These reports, as well as others, were evaluated in the development of the facilities plan and EIS. The land treatment alternative included in the final alternative evaluation was in many respects, the same alternative addressed by Sheaffer and Roland, Inc. for treatment of the 41 mgd proposed in excess of the capacity for which the Village Creek plant is designed.

PART III. MODIFICATIONS AND CORRECTIONS TO THE DRAFT EIS

Part III of the Final EIS contains revisions made to the Draft EIS based on: (1) new or more complete information obtained since release of the Draft; (2) modifications to policies and standards since release of the Draft; (3) errors and omissions identified through the public review process; and (4) internal review by EPA, USCOE, TDWR, and the City of Fort Worth. In addition to changes included in Part III, all of Chapter 1 (Summary) of the Draft EIS is replaced by Part I of this Final EIS. All of the changes are to be incorporated into the Draft EIS.

In each instance below, the change identifies the page, paragraph, and line, as appropriate, which has been revised and then discusses the revision which has been made to update the Draft EIS. References to Paragraph 1, Paragraph 2, etc. indicate full paragraphs beginning on that page in the order they appear on the page. If no paragraph is cited, the lines containing the change will be found in the first partial paragraph on the page. New material is identified by: (1) underlining if it is less than a complete paragraph; and (2) indenting and blocking if it is one complete paragraph or longer.

Page 4-7, paragraph 2, line 3. Change the sentence beginning on this line to read: During the 46 months through December 1982 for which...

Page 4-7, paragraph 2. Add the following sentence at the end: However, beginning in March 1983, the Village Creek WWTF has produced monthly average effluent lower than 10/15 every month.

Page 4-9. Add the following data to Table 4-1:

Date	Flow (mgd)[a]	BOD (mg/l)	TSS (mg/l)
Jan 83	82.3	11	12
Feb 83	89.0	12	19
Mar 83	84.5	7	12
Apr 83	80.5	4	7
May 83	78.5	2	4
Jun 83	79.2	3	3
Jul 83	74.7	3	2
Aug 83	75.5	4	2
Sep 83	69.1	4	3
Oct 83	75.6	4	9
Nov 83	74.3	5	5
Dec 83	75.8	5	5
Yearly Average	78.3	5	7

Page 4-11, paragraph 2, line 8. After the sentence which ends "... to May 1982.", add the following sentence: However, beginning in March 1983, the Village Creek WWTF has produced monthly average effluent lower than 10/15 every month through December 1983.

Page 4-14, paragraph 2, line 3. Delete "quickly" from the sentence beginning on this line and change the following sentence to read: Based on present flow at the Village Creek WWTF and current construction activity the City of Fort Worth estimates that the average daily flow of 96 mgd would be reached on a continuous basis by about 1987.

Page 4-15, paragraph 2, line 5. Change the sentence beginning on the line to the following: Final population figures for the design year (2005) have been developed by NCTCOG, certified by Governor Mark White, and approved by EPA as follows:

1980	1990	2000	2005
711,865	815,680	919,495	971,403

Page 4-32, paragraph 2, line 4. Change "Two" to Three.

Page 4-32, paragraph 2, line 6. Change "has since been" to was.

Page 4-32, paragraph 2, line 7. Change "is" to was and add the following sentence after the sentence that ends on this line: NPDES Permit TX 0047295 was reissued on 25 November 1983 and became effective on 26 December 1983.

Page 4-32, paragraph 2, line 8. Change the sentence ending on this line to read: "...26 November 1979, and has been administratively extended."

Page 4-32, paragraph 2, line 9. Change "Both" to All.

Page 4-32, paragraph 2. Delete the last two sentences of this paragraph.

Page 4-34, Table 4-10. Add the following entry to the table.

Permit	Parameter	Effluent Limit (30-day Average)
• EPA NPDES Permit TX 0047295 (Expires 25 December 1988)	BOD	10 mg/l
	TSS	15 mg/l
	Chlorine Residual	1.0 mg/l
	pH	6.0-9.0

Page 4-35, paragraph 2, line 5. Change the sentence beginning on this line and the following sentence to read as follows: TDWR has collected the additional water quality and hydraulic data. The model is scheduled to be calibrated and verified by May 1984.

Page 4-35. Add the following paragraph after paragraph 3:

No justification for advanced treatment has been received by EPA at this time. When the AWT portion of this project (or any part of the AWT portion) is expected to be funded during the following fiscal year the necessary information must be submitted to initiate a formal AWT review of the entire system proposed in the facilities plan.

Page 4-38, line 9. Delete the remainder of the paragraph after "...produced by the TRA plant." Replace the deleted portion with the following: However, since the above projections, the City of Fort Worth has found that wastewater treatment demand is increasing at a slower rate than previously anticipated. The City now believes a diversion of a portion of the wastewater flow may not be necessary. Therefore, the City is not now considering the diversion as a part of their facilities plan. Negotiations with TRA are still being pursued on an interconnection as part of a long-term operational plan rather than as an interim measure.

Page 4-46, paragraph 3, line 14. After the sentence that ends with "...system (CDM et al. 1981b, 1982)", add the following: The City of Fort Worth believes now that the problem with the existing grit removal system using cyclones was directly related to operation and maintenance of the units. With proper operation and maintenance, the existing system should function properly resulting in a reduction in the generation of odors from this area. Enough room is available in the existing building to add equipment to handle future design flows.

Page 4-79, last paragraph, line 6. Change the sentence that ends on this line to read: ...north of Saginaw (Site 1); potential odor problems associated with operation of a sludge lagoon at the disposal site; the problems associated with transporting liquid sludge to the site by pipeline (right-of-way) or by truck (traffic, aesthetics, etc.); and very strong public opposition.

Page 4-88, paragraph 1. Delete the last sentence of this paragraph and replace with the following: The City of Fort Worth believes now that the problem with the existing grit removal system was directly related to operation and maintenance of the units. With proper operation and maintenance, the existing system should function properly, resulting in a reduction in the generation of odors from this area. Enough room is available in the existing building to add equipment to handle future design flows.

Page 4-88, paragraph 3, line 5. Change the sentence that begins on the line to read: "The City's original draft facilities plan stated...."

Page 4-89, paragraph 1. Delete this paragraph and replace with the following:

Since the development of the draft facilities plan, the City of Fort Worth contracted with Alan Plummer and Associates, Inc. and Malcolm Pirnie (APAI/MP), a joint venture, to conduct a comprehensive odor control study for the existing Village Creek WWTF and proposed expansion. The study has been completed and a summary of the report prepared by APAI/MP is included in Appendix B of the Final EIS.

The City of Fort Worth has reviewed the results of the study and the conclusions reached by the contractor. The City has incorporated the findings of the study in its facilities plan. Appendix B of the Final EIS also includes a summary of actions that the City proposes to include in the facilities plan for odor control as a result of the conclusions and recommendations made by APAI/MP.

Page 4-90, paragraph 1, line 7. After the sentence ending "...under emergency conditions", add the following: "Emergency conditions would be defined as that time when sludge flow at the Village Creek WWTF exceeds the capacity of the system including backup capabilities. Based on past performance and anticipated future conditions, the City of Fort Worth anticipates emergency use of the drying beds to be necessary an average of one period per year. A detailed description of the existing and proposed Village Creek WWTF is included in Appendix C of the Final EIS.

Page 4-97, paragraph 2, line 7. Delete the bullet that reads "• A new TRA transfer pipeline (see Section 4.3.5)."

Page 4-97, paragraph 2, line 15. Change this bullet to read: • Odor control by covering major odor sources and scrubbing exhausted air, and other measures as described in Appendix B of the Final EIS.

Page 4-98, Table 4-27. Change the designated entries as follows:

	Construction Cost	Capital Cost	Annual O&M Cost		Salvage Value
			1985	2005	
Odor Control	$ 7.25	$ 9.51	$ 0.42	$ 0.59	$ 2.08
Subtotal	138.23	181.09	11.28	16.06	39.06
TOTAL	$138.23	$181.09	$ 9.67	$13.76	$39.06

Page 4-102, paragraph 1, line 7. Delete the bullet that reads: "• A new TRA transfer pipeline (see Section 4.3.5)."

Page 4-102, paragraph 1, line 15. Change this bullet to read: • Odor control by covering major odor sources and scrubbing exhausted air, and other measures as described in Appendix B of the Final EIS.

Page 4-103, Table 4-28. Change the designated entries as follows:

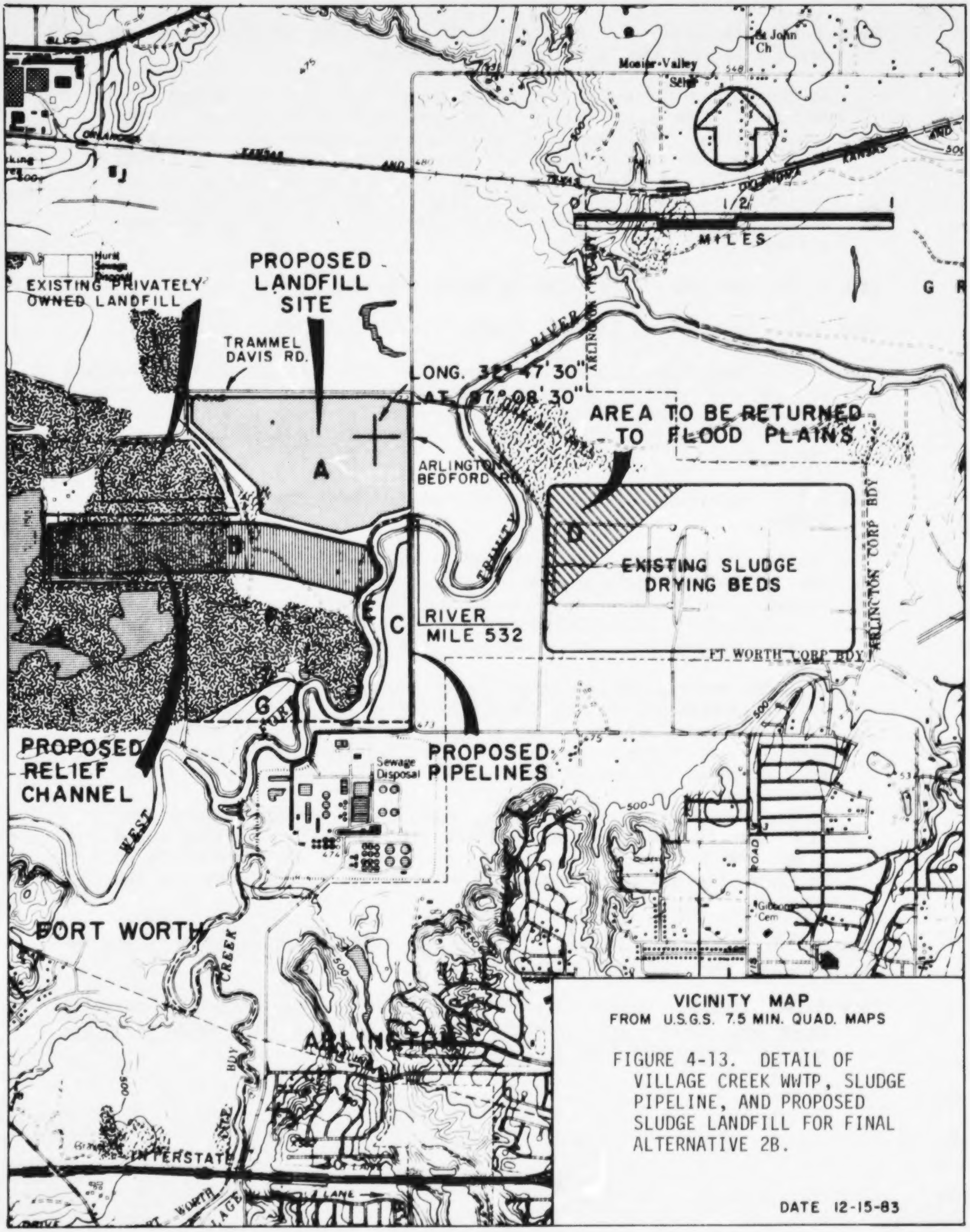
	Construction Cost	Capital Cost	Annual O&M Cost		Salvage Value
			1985	2005	
Odor Control	$ 7.25	$ 9.51	$ 0.42	$ 0.59	$ 2.08
Subtotal	139.96	183.35	10.65	15.17	40.16
TOTAL	$139.96	$183.35	$ 9.04	$12.87	$40.16

Page 4-106, Figure 4-13. Replace this figure with the new Figure 4-13 on the following page.

Page 4-107, paragraph 3, line 9. Change the complete sentence on this line to read as follows: Sludge then would be either disposed of in the sludge-only landfills or composted for beneficial reuse.

Page 4-107, paragraph 4. Replace this paragraph with the following:

> Sludge taken directly from the belt presses would be approximately 25% solids, therefore, a total of 622 tpd of material would be either landfilled or composted. The sludge to be landfilled would be taken to the disposal site and placed in the sludge only landfill in which the ratio of sludge to soil would be approximately 1.5:1. The landfilled sludge would be covered daily for odor and vector control. The sludge to be composted would be mixed on a concrete pad covered with a roof. Composting would be performed by the static pile method which requires pulling air through the compost piles initially.This air would be exhausted through a finished compost pile for odor control. During periods of wet weather, the operating procedure would be modified to allow for sludge storage within the anerobic digesters and the digested sludge storage tanks at the dewatering site. Dewatered sludge would either be composted or landfilled.


Mosier-Valley
St John Ch
0
1/2
1
MILES
PROPOSED LANDFILL SITE
EXISTING PRIVATELY OWNED LANDFILL
TRAMMEL DAVIS RD.
LONG. 32° 47' 30"
LAT. 97° 08' 30"
ARLINGTON BEDFORD RD.
AREA TO BE RETURNED TO FLOOD PLAINS
A
B
C
D
G
EXISTING SLUDGE DRYING BEDS
RIVER MILE 532
TRINITY RIVER
FT WORTH CORP BDY
ARLINGTON CORP BDY
PROPOSED PIPELINES
PROPOSED RELIEF CHANNEL
Sewage Disposal
FORT WORTH
ARLINGTON
WEST FORK
VILLAGE CREEK
INTERSTATE
KANSAS AND TEXAS
500
G R

VICINITY MAP
FROM U.S.G.S. 7.5 MIN. QUAD. MAPS

FIGURE 4-13. DETAIL OF VILLAGE CREEK WWTP, SLUDGE PIPELINE, AND PROPOSED SLUDGE LANDFILL FOR FINAL ALTERNATIVE 2B.

DATE 12-15-83

Page 4-109, paragraph 3. Delete the first sentence of this paragraph and replace it with the following new paragraph:

At present, the City of Fort Worth proposes to utilize Method 1 or Method 4. The exact method to be used would be determined in the final design. The City is developing a groundwater monitoring plan to be implemented regardless of which method is chosen (see Figure 4-14a). Five 4-inch monitoring wells would be drilled along the periphery of the sludge disposal site. Exact locations and depths of the wells would be determined after all test borings are completed.

Page 4-109. Add new Figure 4-14a following this page.

Page 4-110, paragraph 1, line 2. Change "6,100" to 5,900.

Page 4-110, paragraph 1, line 8. Change the last sentence of the paragraph and add sentences as follows: Design details of the flood relief channel have been provided to the US Army Corps of Engineers in a Section 404/10 permit application. The permit application is included in Appendix D of the Final EIS.

Page 4-110, paragraph 2. Replace this paragraph with the following new paragraphs.

The landfill site in Alternative 2B is located from just upstream of the Bedford Arlington Road and extends approximately 7,000 feet upstream. For existing conditions, the 100-year flow velocities in the channel in this reach range from a low of 1.7 to 2.1 fps and in the overbank areas the flows vary from 0.4 to 0.7 fps.

Ultimate development conditions in this area would consist of landfill encroachments to the limit identified by the Flood Insurance Study and construction of the proposed landfill site. Flow velocities for the ultimate conditions described would vary from a low of 2.2 fps to 4.0 fps in the overbank areas for the 100-year flood.

Considering encroached conditions along the river and without construction of the proposed landfill site channel velocities would range from 2.1 to 3.1 fps. Thus, the effect of the landfill is to increase the velocity a maximum of 0.9 fps at one point in the channel.

Page 4-112, paragraph 2, line 7. Delete the bullet that reads "• A new TRA transfer pipeline (see Section 4.3.5)."

Page 4-113, line 3. Change this bullet to read: • Odor control by covering major odor sources and scrubbing exhausted air, and other measures as described in Appendix B of the Final EIS.

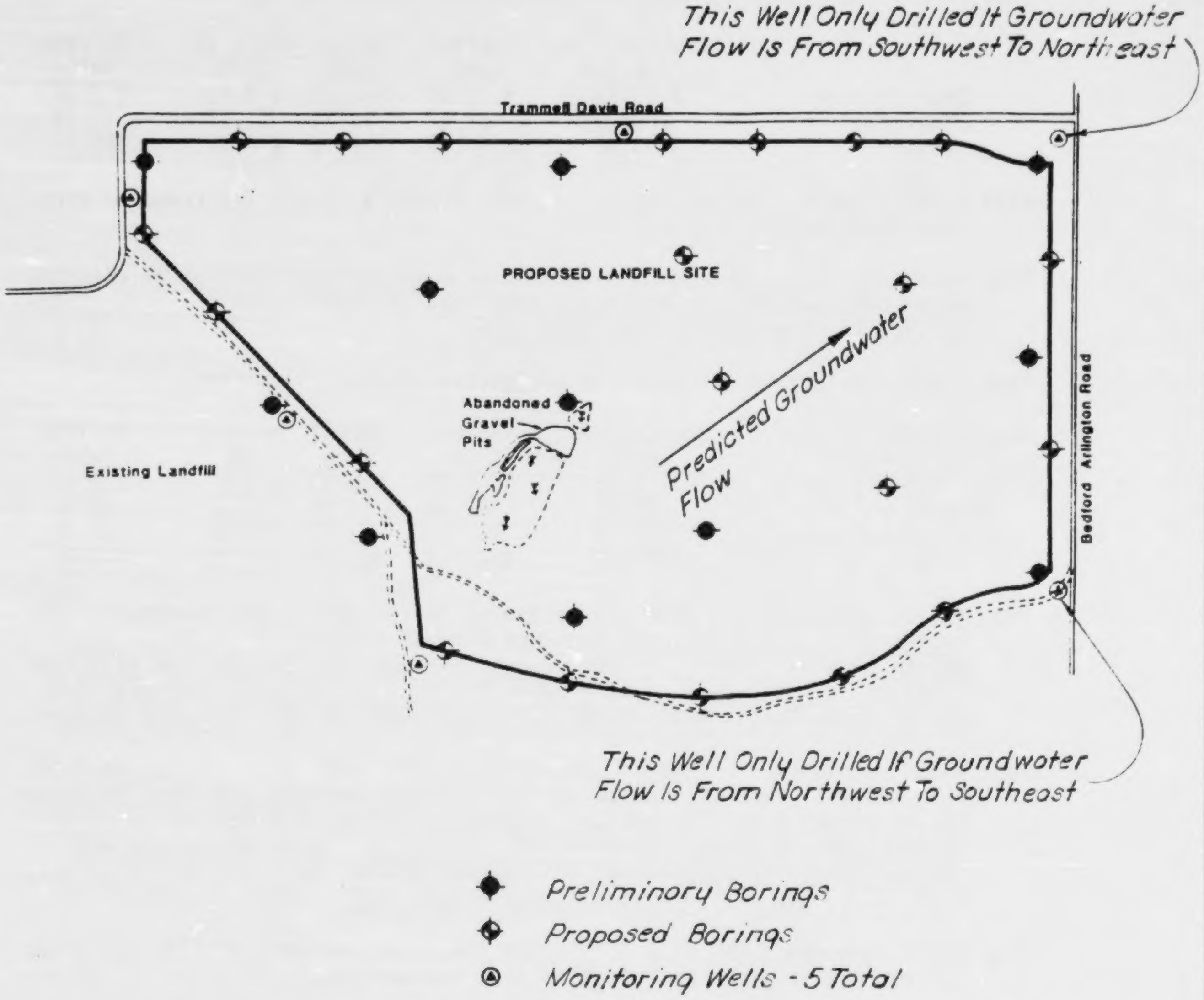

This Well Only Drilled It Groundwater Flow Is From Southwest To Northeast
Trammell Davis Road
PROPOSED LANDFILL SITE
Predicted Groundwater Flow
Abandoned Gravel Pits
Existing Landfill
Bedford Arlington Road
This Well Only Drilled If Groundwater Flow Is From Northwest To Southeast
● Preliminary Borings
Proposed Borings
Monitoring Wells - 5 Total

FIGURE 4-14a

PROPOSED MUNICIPAL SANITARY LANDFILL BORING AND MONITORING WELL LOCATIONS AT PROPOSED SLUDGE LANDFILL

Page 4-114, Table 4-29. Change the designated entries as follows:

	Construction Cost	Capital Cost	Annual O&M Cost 1985	Annual O&M Cost 2005	Salvage Value
Odor Control	$ 7.25	$ 9.51	$ 0.42	$ 0.59	$ 2.08
Subtotal	140.96	184.67	10.37	11.91	41.55
TOTAL	$140.96	$184.67	$ 8.76	$ 9.61	$41.55

Page 4-125, line 4. Delete the bullet that reads "• A new TRA transfer pipeline (see Section 4.3.5)."

Page 4-125, line 10. Change this bullet to read: • Odor control by covering major odor sources and scrubbing exhausted air, and other measures as described in Appendix B of the Final EIS.

Page 4-126, Table 4-33. Change the designated entries as follows:

Improvements at Village Creek	Construction Cost	Capital Cost	Annual O&M Cost 1985	Annual O&M Cost 2005	Salvage Value
Odor Control	$ 5.55	$ 7.27	$ 0.42	$ 0.47	$ 1.49
Subtotal	75.20	98.52	10.55	10.60	19.81
TOTAL (Before Credits)	199.97	261.97	11.57	14.28	77.02
TOTAL	$199.97	$261.97	$10.19	$12.90	$77.02

Page 4-129, paragraph 1. Add the following to the end of the paragraph: The cost-effectiveness analysis does not include changes in projected costs due to changes in odor control plans. However, the changes are relatively minor and therefore insignificant for purposes of this analysis (see revisions to Tables 4-27, 4-28, 4-29, and 4-33 for cost estimate changes).

Page 4-131, paragraph 1. After the sentence that ends with "in Tables 4-35, 4-36 and 4-37, add the following: Anticipated monthly user fees in these tables do not take into account changes in projected costs due to changes in odor control plans. However, the changes are relatively minor and insignificant for purposes of this analysis (see revisions to Tables 4-27, 4-28, 4-29, and 4-33 for cost estimate changes).

Page 4-131, paragraph 2, line 1. Delete the first sentence of this paragraph and replace it with the following as a new paragraph:

After review and evaluation of Alternatives 1, 2A, and 3, and consideration of input from City staff, the CAC, the general public via public meetings, and the City's engineering consultants, the City Council selected Alternative 2A as the City's preferred plan on 6 July 1982. However, in response to strong citizen concerns and questions about the implementability of the sludge disposal portion of Alternative 2A, the City Council instructed City staff to investigate an additional alternative which would involve expanding the Village Creek WWTF and disposing of sludge in a landfill at a new location. City staff and consultants then developed a fourth final alternative, referred to in the Draft EIS as "2B". The Fort Worth City Council officially adopted Alternative 2B as the City's proposed alternative on 16 November 1982. The City of Fort Worth presented Alternative 2B to the CAC in a meeting on 6 December 1982.

Page 4-131, paragraph 2. Change the last sentence to read as follows: Implementation of Alternative 2B would also require a Section 10/404 permit from the US Army Corps of Engineers.

Page 4-135, line 12. Delete "and the TRA interconnection line."

Page 4-136. Replace Figure 4-20 with a new Figure 4-20 provided on the following page.

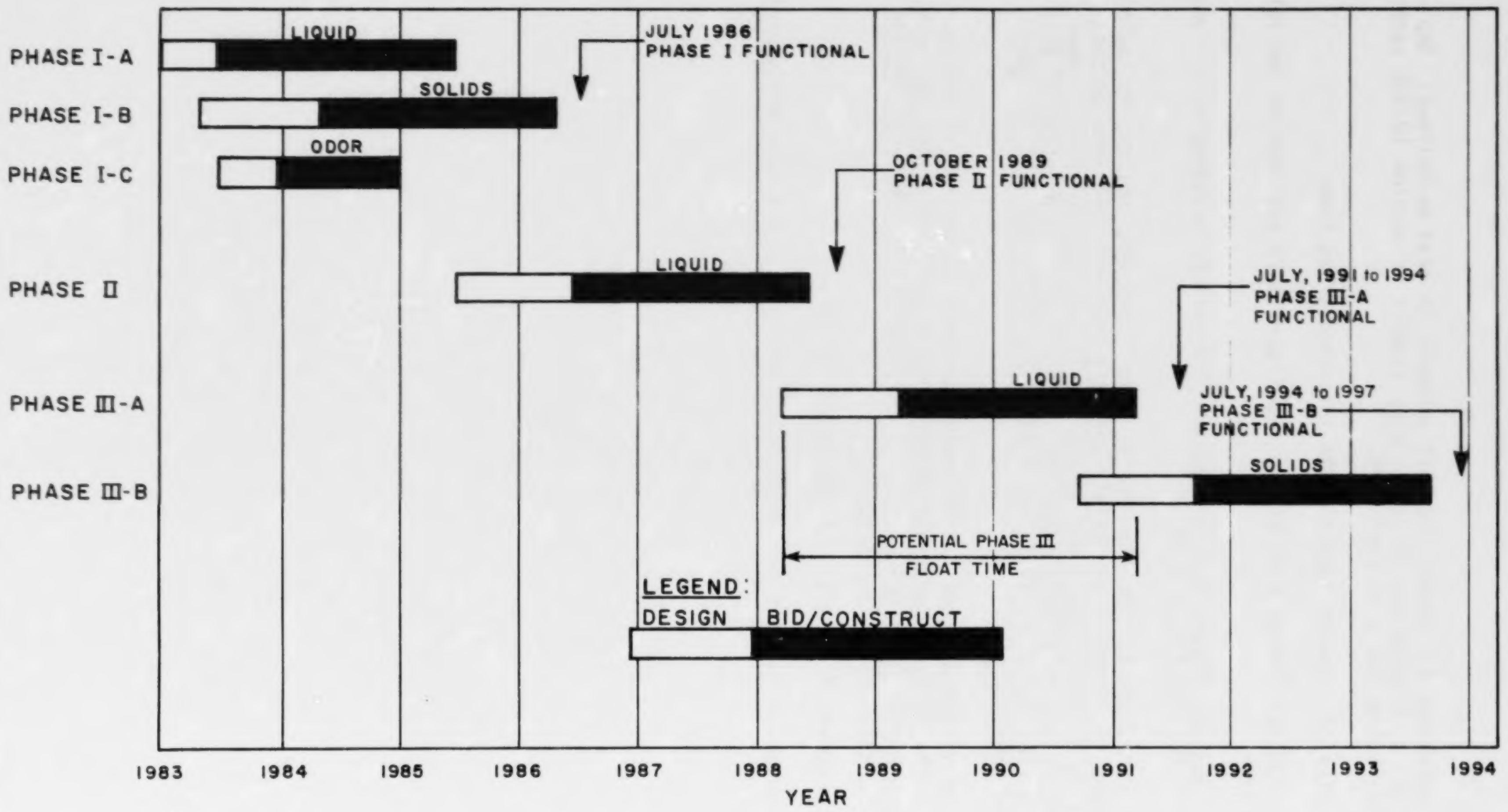
Page 4-137. Replace Figure 4-21 with a new Figure 4-21 provided on the page following the new Figure 4-20.

Page 4-138, paragraph 1. At the end of this paragraph, add the following: The community financial capability analysis does not take into account changes in projected costs due to changes in odor control plans. However the changes are relatively minor and insignificant for purposes of this analysis (see revisions to Tables 4-27, 4-28, 4-29, and 4-33 for cost estimate changes).

Page 4-140, paragraph 1. Add the following sentence to the end of this paragraph: The USCOE is currently processing the application for the permit and all comments forwarded to EPA will be supplied to the USCOE for use in their public interest review.

Page 5-51, paragraph 4, line 2. Change "four" to five.

Page 5-51, paragraph 4, line 6. After "Lake Arlington", add Lake Bridgeport.



CITY OF FORT WORTH, TEXAS
201 FACILITIES PLAN

CDM CAMP DRESSER & McKEE, INC
RADY & ASSOCIATES, INC

REALISTIC
PHASED CONSTRUCTION SCHEDULE

REVISED
EXHIBIT VII-8

FIGURE 4-20

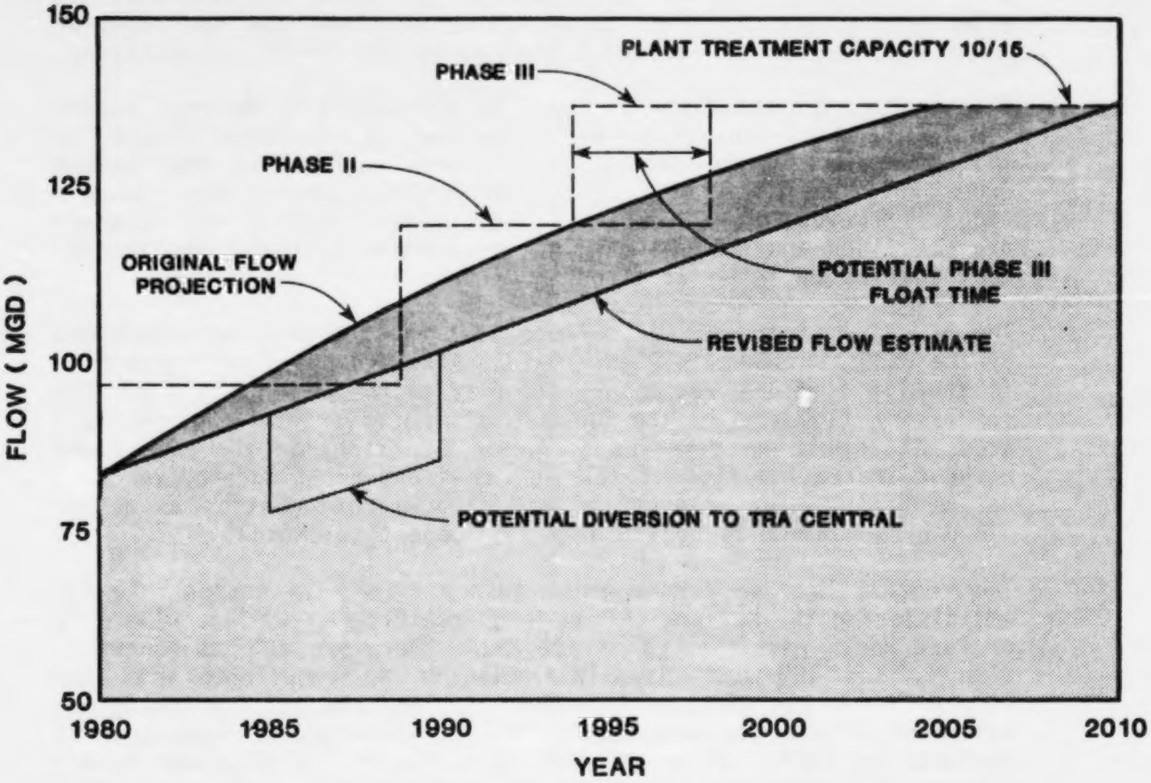


FIGURE 4-21

PHASED PLANT CAPACITY
AND
REVISED FLOW ESTIMATES

(REVISED POPULATION FROM NCTCOG:
YEAR 2005 POPULATION - 971,403)

REVISED EXHIBIT VII-9

CDM CAMP DRESSER & McKEE, INC.
RADY & ASSOCIATES, INC.

Page 5-51, paragraph 4, line 10 and following. Delete the portion of this sentence which reads: "which according.....of the 100-year flood" and replace the remainder of Section 5.3.1.1 with the following:

The base flood, or 100-year flood, elevation at the Village Creek WWTF is 478 feet above sea level. The base flood is the flood having a 1% chance of being equaled or exceeded in any given year. Recent preliminary studies performed by the USCOE indicate that the water elevations for the standard project flood and the 500-year flood are 485.5 feet and 483.9 feet above sea level, respectively.

The standard project flood is that flood produced by the most severe flood-producing rainfall of any storm that is considered reasonably characteristic of the region. The levees surrounding the Village Creek WWTF would be high enough to protect against the 100-year flood. However, the levees would not protect against the standard project flood and would likely not have adequate free board to protect against the 500-year flood.

The boundary of the 100-year flood at project Site 2 as determined by the USCOE is shown in Figure 5-13. Also indicated in Figure 5-13 is the limit of the regulatory floodway in the area of Site 2. The regulatory floodway is the channel of the river and adjacent land areas that must be reserved in order to discharge the base flood without increasing flood levels upstream and creating erosive channel velocity. This floodplain and floodway information as determined by the USCOE is preliminary and subject to change.

The Federal Emergency Management Agency (FEMA) is responsible for administering the National Flood Insurance Program (NFIP). The City of Fort Worth participates in the NFIP, therefore all new construction in the 100-year floodplain must be in compliance with the City's floodplain management ordinance. Any change in existing development or any new development in the regulatory floodway must be approved by FEMA. If a proposed activity in the floodway is approved, the effective Flood Insurance Study must be revised after the proposed modifications are completed. FEMA's regulations and floodway boundaries are based on changes to 100-year flood elevations. According to the USCOE, three (3) facilities in the vicinity of the Village Creek WWTF currently affect flood conditions (Mayfield 1983a):

(1) The Village Creek WWTF;

(2) The City of Arlington constructed a landfill, surrounded by levees, a few miles downstream of the Village Creek WWTF. The Arlington landfill creates an obstruction to flood flows;

(3) Levees were built around the sludge drying beds at the Village Creek WWTF. The drying bed levels restrict flood flows.

Any construction of levees must also be permitted by the TDWR.

Page 5-54, last paragraph. Replace this paragraph (which ends on page 5-55) with the following:

Known water quality problems in Segment 0805 include regularly depressed and periodically critically low dissolved oxygen levels. Elevated levels of PCBs and some heavy metals have been found in water samples taken from the segment. The sediments in the segment have accumulated levels of chlordane, DDE, and PCB. Levels of DDE, dieldrin, and PCBs have been detected in fish tissue collected in 0805. The source of these contaminants has not been determined.

Page 5-55, paragraph 2, line 7. Change "December 1983" to May 1984.

Page 5-60, after paragraph 1, add the following paragraphs:

Based on mathematical modeling performed during the Water Quality Standards revision process, it was shown that effluent limits of 10 mg/l BOD$_5$ and 15 mg/l TSS at the four major wastewater treatment plants would be sufficient to protect the current standards through 1990. On 3 June 1983 the TDWR modified the Water Quality Management Plan for the Upper Trinity River to reflect the revised water quality standards for Segment 0805. The revised allocation was approved by EPA in a letter dated 20 July 1983. Therefore, the effluent set of 5 mg/l BOD$_5$/5 mg/l TSS/3 mg/l NH$_3$N no longer represents the appropriate final limitation for the Village Creek WWTF.

In approval of the revised wasteload allocation, EPA supported the TDWR's recommendation of additional water quality studies on Segment 0805 to further evaluate the water quality impact of the recently improved wastewater quality of the major dischargers. The TDWR has completed two intensive surveys and is currently in the process of calibrating an updated water quality model for the upper Trinity River. This additional data and improved water quality model which will utilize the 137 mgd flow projections included in Fort Worth's facilities plan and this EIS, are expected to improve the ability to predict the river's response to future increasing wasteloads. Preliminary results indicate that dissolved oxygen criteria will not be maintained through the year 2000 with the plant at 10 mg/l BOD$_5$, 15 mg/l TSS, and ambient NH$_3$N effluent limitations, thus nitrification will be required for those flows.

Page 5-60, paragraph 2. Replace this paragraph with the following new paragraph:

The NPDES permit issued in 1974 expired in 1977 and was administratively extended until a new permit was issued. A new NPDES permit, with effluent limits of 10 mg/l BOD$_5$ and 15 mg/l TSS, was issued on 25 November 1983 and became effective 26 December 1983. The City of Fort Worth is now operating the Village Creek WWTF under the new permit. A copy of the permit is included in Appendix F of the Final EIS.

Page 5-60, paragraph 3. Replace the remainder of the section with the following as the final paragraph:

The alternatives developed by the City of Fort Worth in the draft facilities plan would produce an effluent which would meet the limits established in the current wasteload allocation. The average wasteload (i.e., pounds of pollutants per day) discharged by the Village Creek WWTF from 1979 through 1982, and the wasteloads which would be discharged by implementation of one of the four final alternatives are as follows:

Parameter	Existing Village Creek WWTF (85 mgd)		Proposed Discharge for Alternatives			
			1, 2A, 2B (137 mgd)		3 (96 mgd)	
	mg/l	lbs/day	mg/l	lbs/day	mg/l	lbs/day
BOD	35	24,812	10	11,426	10	8,006
TSS	64	45,370	15	17,139	15	12,010
NH_3N	20	14,178	20	22,852	20	16,013

Page 5-63, paragraph 1. Change this paragraph to the following:

Since March 1983, the present Village Creek WWTF has consistently produced an effluent of 10/15 or better. However, implementation of the no action alternative would result in difficulty meeting effluent limitations in the future, especially under high flow conditions.

Page 5-66, paragraph 4, last sentence. Revise the sentence to read as follows: The City will be required to obtain a Section 404 permit from the USCOE for the discharge of dredged or fill material into waters of the United States, including adjacent wetlands, and a Section 10 permit from the USCOE for any work or structure in or affecting a navigable water of the United States.

Page 5-67, paragraph 1. Delete "Preliminary" from the last sentence and add the following sentences: A Floodplain/Wetland Notice and Statement of Findings summarizing the analyses of impacts of Alternative 2B on floodplains and wetlands is included in Appendix E of the Final EIS. This Statement of Findings was developed in accordance with Executive Order 11988 - "Floodplain Management" - and Executive Order 11990 - "Protection of Wetlands".

Page 5-67, paragraph 3. Replace this paragraph with the following:

Experimental beneficial sludge reuse programs would be conducted on all or portions of a 30-acre tract of land the City of Fort Worth owns just southeast of the Trinity River and directly north of the Village Creek WWTF (see Area C on revised Figure 4-13). Sludge reuse programs conducted potentially would include landspreading with incorporation into the soil of dewatered sludge and/or surface injection of liquid sludge.

Since the beneficial reuse program would be conducted in the floodplain, any sludge containing bacteria, toxic materials, and/or organic and inorganic solids potentially could be washed downstream during major flood events. However, any land application activity must meet the provisions in the "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR Part 257) for surface water, groundwater, disease, endangered species, safety, floodplains, air, and foodchain crops. Under these regulations, sewage sludge can be applied to soils in the floodplain, provided the operation does not: (1) cause the restriction of base floodwaters (100-year flood); (2) reduce the temporary storage capacity of the floodplain; or (3) result in the washout of the sludge.

EPA believes that "if sludge is applied to the surface and incorporated into the soil and if vegetation is established, the Criteria should be satisfied" (EPA 1980d). The City of Fort Worth would be required to meet the above requirements as well as any additional requirements of the Texas Department of Health. Odor should not be a problem with such an operation since the sludge would be incorporated into the soil.

Page 5-67, paragraph 5, sentence 2. Change "6,100" to 5,900.

Page 5-67, paragraph 5, sentence 5. Change "would" to may.

Page 5-78. Add the following sentence to the paragraph which begins on page 5-77: Currently there are no portions of Tarrant County which are listed for non-attainment areas for particulates.

Page 5-78, paragraph 1, line 2. Change "0.08" to 0.12.

Page 5-78, paragraphs 2 and 3. Replace these two paragraphs with the following:

On 23 June 1983, EPA announced, and on 2 November 1983 published in the Federal Register, (48 FR 50686) that they no longer intended to impose sanctions against those communities for failure to achieve air quality standards when reasonable efforts have been made to carry out EPA-approved implementation plans. Detailed guidelines became available in February 1984.

Since a sewage treatment plant is normally not a major source of any air pollutant, a construction moratorium typically would not impact proposed construction of a sewage treatment plant. However, a restriction on Federal grants could impact the construction of a sewage treatment plant since Section 316(b) of the Clean Air Act allows the Administrator to withhold, condition, or restrict sewage treatment grants. In the 2 November 1983 Federal Register, EPA indicated that they are reviewing their policy for implementing Section 316. If EPA decides to impose the 316(b) sanction, a notice would be published in the Federal Register.

Page 5-87, paragraph 1, last sentence. Change this sentence to the following: All feasible engineering efforts that would reduce odors have been evaluated in an odor control study conducted by Alan Plummer and Associates, Inc. and Malcolm Pirnie (APAI/MP), a joint venture for the City of Fort Worth. A summary of the study and its conclusions, along with the proposed action by the City of Fort Worth are included in Appendix B of the Final EIS.

Page 5-87, paragraph 2. Delete the second sentence of this paragraph.

Page 5-91, paragraph 1, last sentence. Change this sentence to the following: Sludge deposited in the floodplain would either be injected or incorporated into the soil. Therefore, odors generated from this activity and during and after flooding should be minor.

Page 5-93, paragraph 2, line 2. Change "1/8 to 1/4 mi" to 1/10 mi.

Page 5-97, paragraph 3, line 2. Change "Helinanthus" to Helianthus.

Page 5-97, paragraph 4, line 7. Change "Bacharis" to Baccharis.

Page 5-104, paragraph 3, line 7. Delete the sentence that begins with "Since these areas".

Page 5-105, paragraph 3, line 7. Delete the sentence that begins with "The new channel".

Page 5-119, paragraph 1, line 3. Change the sentence that begins on this line to the following: The City of Fort Worth will design the routings of the Village Creek and Clear Fork collectors to avoid these sites.

Page 5-119, paragraph 3, line 3. Delete the two sentences which read "Planning and design.....on cultural resources.

Page 5-119, paragraph 3, line 5. Delete "also".

Page 5-125, paragraph 1. Delete the first two sentences of this paragraph and replace them with the following: The Village Creek WWTF is located at the confluence of Village Creek and the Trinity River in east Fort Worth just within the city limits. Developed areas in Fort Worth are located about 1 mile to the west of the facility. The current land use plan for the City of Fort Worth calls for park and open space in the area between Village Creek and existing development in east Fort Worth. However, this area was recently rezoned for residential apartment and medium density development. Plans for development have not been received by the City.

Page 5-125, paragraph 2, line 5. After the sentence which ends with "for industrial development" insert the following sentence: Green Oaks Boulevard is planned to be constructed to run east and west to the south and southeast of the Village Creek WWTF.

Page 5-133, paragraph 3, line 3. Delete "500-ac".

Page 5-148. Add the following paragraph after paragraph 2:
The City of Fort Worth has also had success in reducing the fly problem through use of a piece of equipment called a "Brown Bear". The "Brown Bear" has a horizontal auger attachment that turns the sludge in the drying beds into windrows and enhances its drying. Use of the "Brown Bear" reduces considerably the conditions which have led to fly propagation in the past. The City has purchased a "Brown Bear" for use at the Village Creek WWTF.

Page 5-151, paragraph 3, line 4. Change this sentence to read: "...odor at the WWTF would be treated by covering major odor sources and scrubbing exhausted air and other measures described in Appendix B of the Final EIS.

Page 5-157, line 1. Delete the last two sentences of this paragraph and replace them with the following: As a part of this alternative, the City of Fort Worth would provide fish and wildlife mitigation as described in the 404/10 permit application presented in Appendix D of the Final EIS. The area set aside for wildlife study and the wildlife plantings and wildlife management provided would enhance the recreation potential of the general area for nature study.

Page 5-159. Add the following paragraph between paragraphs 2 and 3:

Construction activities at the Village Creek WWTF might result in some disruption to normal operation of the treatment plant. The City of Fort Worth would develop a plan for construction which would be designed to minimize any disruptions.

Page 5-160, paragraph 1. Add the following sentence to the end of the paragraph: Long-term adverse impacts due to destruction and modification of fish and wildlife habitats would be mitigated through implementation of a fish and wildlife mitigation plan.

Page 5-160. After paragraph 1, add the following paragraph:

Siting of the sludge disposal facilities in the Trinity River floodplain would potentially have an impact on flood levels upstream. The City of Fort Worth would construct a flood relief channel and relocate the levee around the existing sludge drying beds in order to prevent increasing water levels upstream during flooding.

Page 5-161, paragraph 3. Delete the last two sentences of this paragraph and replace them with the following: Odors from the Village Creek WWTF would be controlled to a great extent by covering major odor sources and scrubbing exhausted air, and by implementing other measures described in Appendix B of the Final EIS.

Page 5-162, paragraph 2. Change the fifth bullet to the following: ● an increase in flow volumes due to the increases in impervious cover in watersheds experiencing urbanization supported by system expansion would occur (long-term).

Page 6-5. Replace line 2 of the address for the North Central Texas Council of Governments with the following: Centerpoint Two, 616 Six Flags Drive.

Page 7-1. In the "List of Preparers", under Environmental Protection Agency add: Lawrence F. Brnicky; B.S. Interdisciplinary Engineering; 8; Program Engineer, Construction Grants Branch.

Page 7-1. In the "List of Preparers", after the category for Environmental Protection Agency, add the following new category and entries:

Name	Education	Experience	Responsibility
	US Army Corps of Engineers		
H. Brooks Carter	M.S. Forestry	4	Corps of Engineers Coordinator for Fort Worth EIS

Page 8-5. Between Kowal, N.E. and H.R. Pahren, 1980, and Lamb, L., 1957, insert the following reference: Kuno, B. 1983. Telephone conversations with Mr. Bill Kuno, 22 and 23 November 1983, Federal Emergency Management Agency, Denton TX.

Page 8-5. Between Lindvall, Thomas, 1970, and Lock, J. 1983, insert the following reference: Littlefield, J.W. 1983. Telephone conversation with Mr. James W. Littlefield, 28 November 1983, Assistant Director, Division of Milk and Dairy Products, Texas Department of Health, Austin TX.

Page 8-5, between Mayfield, W., 1983, and McCullough, J.D. and M.A. Camp, 1973 insert the following reference: Mayfield, W., 1983a. Telephone conversation with Mr. William Mayfield, 22 November 1983, USCOE, Fort Worth TX.

Page 8-12. Between US Environmental Protection, 1980c, and US Environmental Protection Agency, 1981a, insert the following reference: US Environmental Protection Agency. 1980d. A guide to regulations and guidance for the utilization and disposal of municipal sludge (430/9-80-015). Washington DC.

Page 8-12, between US Environmental Protection Agency, 1982b, and US Geological Survey, 1980, insert the following reference: US Environmental Protection Agency, US Army Corps of Engineers, US Department of the Interior and US Department of Agriculture. 1981. Process design manual for land treatment of municipal wastewater. Cincinnati OH.

PART IV. PREFERRED ALTERNATIVES

A. POSITION OF THE CITY OF FORT WORTH

As described in the Draft EIS, the City of Fort Worth proposes to make certain improvements to their wastewater collection and treatment facilities to properly handle wastewater from Fort Worth and their customer cities for a 20-year planning period, from 1985 to design year 2005. The City's preferred alternative includes major improvements for the following wastewater collection mains: Village Creek; Clear Fork; West Fork; Walker Branch; M-245; and M-280. The Village Creek WWTF would be expanded at its present site to provide advanced secondary treatment for 137 mgd (average annual flow) of wastewater. New units would include: primary screening and primary sedimentation tanks; activated sludge secondary treatment facilities, dual-media filtration advanced treatment facilities; effluent disinfection (chlorination) units; sludge thickening and anaerobic digestion units and methane gas (energy) recovery and utilization facilities. Odor control would be accomplished by covering major odor sources and scrubbing exhausted air along with other measures in accordance with a comprehensive odor control plan. All of the above units would be constructed inside existing levees and effluent would be discharged to the Trinity River.

Sludge would be pumped through two 12-inch pipelines to a disposal site due north of the Village Creek WWTF across the Trinity River. Sludge would be mechanically dewatered at the disposal site and then disposed in a sludge only landfill. A levee would be constructed around the dewatering facilities and landfill to protect them from flooding. In addition, the City would develop an experimental program for beneficial reuse of sludge. The ultimate goal would be to beneficially use all of the sludge produced by the Village Creek WWTF. Regular use of the existing sludge drying beds would be discontinued; however, the beds would be retained for use in emergency situations.

To prevent the newly constructed levees (dikes) from causing flooding problems upstream or downstream, part of the existing dikes aroung the sludge drying beds would be moved back away from the Trinity River to provide additional area for floodwaters to pass through. Also, a flood relief channel with an 800-foot bottom width, 5:1 side slopes, and a total length of approximately 5,900 feet would be constructed on the 500-acre sludge disposal site to convey floodwaters past the newly diked landfill area.

The proposed project would be built in three major phases:

- Phase I would involve adding liquid treatment to properly handle peak flows, mechanical sludge dewatering with landfill disposal, sludge, and odor control facilities. Phase I would be fully operational in July 1986;

- Phase II would involve adding liquid treatment facilities to properly handle 120 mgd. Phase II would be completely operational in October 1989; and

- Phase III would involve adding liquid treatment and sludge treatment faciliti.. to properly handle 137 mgd. Phase III would be fully operational in July 1997.

Further information on the alternative is provided in the Draft EIS and the draft facilities plan and supplements. The total present worth cost of the proposed facilities is as follows:

Interceptors and related improvements	$ 65,330,000
Treatment works and sludge management	210,020,000
TOTAL COST	$275,350,000

B. PREFERRED EPA AND TDWR ACTIONS

Based on a thorough review of the City of Fort Worth's facilities plan, the analyses in the Draft and Final EIS's and written and oral comments received, EPA and the TDWR prefer the alternative of funding, with conditions, construction of eligible portions of the treatment system improvements proposed by the City. Funding would be subject to considerations such as availability of funds and priority designation. Since this facility is designed to provide treatment more stringent than secondary, the incremental capital costs of the project that are attributable to effluent limitations or water quality requirements more stringent than secondary must be justified. The justification must show significant water quality improvement or the prevention of degradation of existing water quality. This review has not been completed. If the review does not support the need for the more stringent effluent limits, those portions of the project which are attributable to those limits will not be eligible for Federal funding and the cost to Fort Worth will increase significantly. When the advanced treatment (AT) portion of this project (or any part of the AT portion) is expected to be funded during the following fiscal year, the necessary information must be submitted to initiate a formal AT review of the entire system proposed in the facilities plan. Final approval of the facilities plan cannot be made until the environmental review process is complete. The final decision will be presented in a Record of Decision which EPA will issue following the review period for the Final EIS.

In order to lessen the potential for certain adverse environmental impacts, EPA would recommend to the TDWR that certain conditions be placed on any construction grant awarded to the City of Fort Worth. The proposed conditions are summarized below:

1. The City of Fort Worth would be required to implement measures within its legal authority to ensure that land uses adjacent to the Village Creek Wastewater Treatment Plant are compatible with such a facility.

2. The City of Fort Worth would be required to develop a formal plan of construction for the purpose of minimizing odor problems and disruption of plant operations during construction. The plan must be agreed to by each prime contractor before a Notice to Proceed could be issued. The plan of construction must be outlined in the specifications so that each bidder would understand what is required.

3. The City of Fort Worth would be required to ensure that any work performed in the floodplain not cause any increase in flood levels within the community during the base flood drainage.

4. The City of Fort Worth would be required to follow erosion control measures outlined in their Section 404 permit application and to continue to seek technical assistance, as appropriate, from the US Soil Conservation Service in designing, constructing and operating the flood relief channel.

5. The City of Fort Worth would be required to follow the provisions of the fish and wildlife mitigation plan developed as a part of the design of the sludge disposal facilities.

6. The City of Fort Worth would be required to have final plans for its sludge reuse program reviewed and approved by the Texas Department of Water Resources and/or the Texas Department of Health, as appropriate, in accordance with regulations developed to implement the Resource Conservation and Recovery Act.

7. The City of Fort Worth would be required to develop a contingency plan for access to sludge disposal facilities in the event of a major flood along the Trinity River.

8. If buried cultural remains are discovered during construction work, the City of Fort Worth would be required to stop work in the area immediately and contact EPA and the TDWR. Appropriate procedures in accordance with 36 CFR Part 800 must be completed before taking any action which would affect the cultural resources. The City of Fort Worth would be required to avoid archaeological sites 41TR65 and 41TR66 in the construction of the Clear Fork interceptor. If current plans to avoid these sites change, the City would be required to contact EPA and TDWR before taking any action which might affect the resource.

C. PREFERRED U.S. ARMY CORPS OF ENGINEERS ACTION

The USCOE is currently processing the application for the City of Fort Worth's Section 10 and 404 permit. Comments continue to be accepted and all available information is being reviewed as to the decision to issue or deny the permit. The USCOE has no preferred alternative at this time.

APPENDIX A. COMMENT LETTERS AND RESPONSES

All comment letters received by EPA on the Draft EIS are reproduced in Appendix A. Those comments which require a response are keyed to the control number of the letter in which they appear (for example, comment 2-5 is the fifth comment in letter No. 2). The numbered responses generally are placed across from the corresponding comment.

Many of the responses to comments in Appendix A reference responses to issues found in Part II, Section C, beginning on Page II-15. Part III of this Final EIS lists all pages of the Draft EIS which have been corrected or modified in response to the comments.

Federal Emergency Management Agency
Region VI Federal Center Denton, Texas 76201

August 4, 1983

RECEIVED
AUG 8 1983
CES

Mr. Clinton B. Spotts
Regional EIS Coordinator
U.S. Environmental Protection Agency
Region 6
1201 Elm Street
Dallas, TX 75270

Dear Mr. Spotts:

The following are our comments on the Draft Environmental Impact Statement (EIS) for Wastewater Treatment Facilities, for the City of Fort Worth, Tarrant County, Texas. Our review is limited to compliance with community regulations as applicable to the National Flood Insurance Program (NFIP) and the location of the proposal upgrading and expansion of the facilities in relation to the special flood hazard area or 100-year floodplain as delineated by FEMA.

1-1 Fort Worth is participating in the NFIP, therefore, all new construction in the 100-year floodplain must be in compliance with the city's floodplain management ordinance.

1-2 Alternative 2 is located in the regulatory floodway. No encroachment is allowed within the floodway that will result in any increase in flood levels in Fort Worth during the occurrence of the base flood discharge.

1-3 It is FEMA's policy to provide leadership in floodplain management and the protection of wetlands. The objective of Executive Orders 11988, Floodplain Management, and 11990, Protection of Wetlands, is to avoid the long and short term adverse impacts of development in floodplains and wetlands and to avoid direct and indirect support of new construction in floodplains and wetlands wherever there is a practicable alternative. If we may provide additional information to assist you in accomplishing this objective, please let us know.

We hope our comments will be helpful. Please contact us at the above address or call 817-387-5811, Extension 231, if we may offer further assistance.

Sincerely,

f R. Dell Greer, Chief
Natural and Technological
Hazards Division

1-1 The work proposed by the City of Fort Worth for its sludge disposal facilities would be in compliance with their floodplain management ordinance.

1-2 See Part II, Section C of the Final EIS, response to Issue 2c. The work proposed within the regulatory floodway will not result in any increase in flood levels in Fort Worth during the occurrence of the base flood discharge. The City of Fort Worth has supplied appropriate documentation to the Federal Emergency Management Agency (FEMA). FEMA approved the proposal in a letter dated 7 November 1983 to the City of Fort Worth (see Appendix H).

1-3 See Part II, Section C of the Final EIS, response to Issue 2c.

DEPARTMENT OF HEALTH & HUMAN SERVICES Public Health Service

Centers for Disease Control
Atlanta GA 30333
(404) 452-4257

August 16, 1983

RECEIVED
AUG 19 1983
6 ES

Mr. Clinton B. Spotts
U.S. Environmental Protection Agency
Region VI
1201 Elm Street
Dallas, Texas 75270

Dear Mr. Spotts:

We have reviewed the Draft Environmental Impact Statement (EIS) for the Wastewater Treatment Facilities (WWTF), City of Fort Worth, Texas. We are responding on behalf of the U.S. Public Health Service.

A key provision of the Clean Water Act (CWA) that directly affects the construction grants program states that "municipalities are required to consider alternative or innovative systems that provide for reclaiming, reuse, or recycling
2-1 of wastewater; elimination of discharges; and recovery of energy." One objective of the CWA is to "maximize beneficial uses of sludges that conform to Federal standards." Considering the intent of the above statements, we question the proposed method (Alternative 2B) for sludge disposal in a landfill located within the floodplain of the West Fork Trinity River. This procedure appears to con-
2-2 flict with the provisions and intent of the CWA and Executive Order 11988, Floodplain Management. Although it is stated that the city would subsequently
2-1 develop a program for beneficial reuse of sludge demonstrations, we believe this program should be developed and approved before funding occurs. The Final EIS
2-2 should indicate if this procedure is consistent with the provisions of the CWA and Executive Order 11988.

2-3 Sludge disposal activities must also be conducted in compliance with the Resource Conservation and Recovery Act. It is noted on page 5-67 that certain activities in the floodplain may in fact be prohibited under those regulations. Compliance with all applicable regulations should be verified in the Final EIS.

2-4 Toxic materials which have been identified in the Trinity River bottom sediments could be released during construction of the flood relief channel (Alternative 2B). It is stated that if channel lining is not provided, erosion of toxic sediments from the channel bottom and sides could occur during each flood event. These toxic sediment washouts, depending on concentrations, potentially could cause adverse water quality and health effects downstream of the proposed landfill. We recommend that the Final EIS identify the level of contamination tested compared to the recommended values illustrated on page 5069 of the Draft EIS. In addition, uses of the Trinity River in proximity to the proposed project should be identified. Appropriate mitigation plans to eliminate potential health hazards should be summarized in the Final EIS.

We have concerns regarding potential soil and groundwater quality hazards posed by sludge surface application and landfilling. Potential problems that could

2-1 See Part II, Section C of the Final EIS, response to Issue 2d.

2-2 See Part II, Section C of the Final EIS, response to Issue 2c.

2-3 See Part II, Section C of the Final EIS, response to Issue 2e.

2-4 See Part II, Section C of the Final EIS, response to Issue 2f. Designated water uses for Segment 0805 of the Trinity River (the segment to which the Village Creek WWTF discharges) are irrigation and industrial supply. See Section 5.3.1.2, page 5-52, of the Draft EIS.

develop involve soil and groundwater contamination by pathogens, nitrates, and toxic heavy metals, all of which can be leached from sludge through the soil to groundwater. These possibilities have been thoroughly addressed in the Draft EIS. Sludge currently generated at the Village Creek WWTP does not have high concentrations of heavy metals at the present time, and the landspreading of sludge (Alternative 1) would not occur on food-chain crops during the 20-year planning period. Also, the geology at the proposed site is described as being suitable for the planned operations. However, to ensure continued protection of groundwater, regulations governing land application of sludge must be strictly followed, and periodic monitoring would be required to insure that maximum recommended concentrations of metals and other contaminants are not exceeded. An established monitoring program should be a part of the proposed project. 2-5

2-6 Potential health problems resulting from generation of potentially pathogenic aerosols exist, however, serious problems have not been substantiated (p. 1-12). Although the area in proximity to the proposed facility is sparsely populated and problems with aerosols or odors are not anticipated, additional wastewater management capacities will result in moderate population growth in the planning area, and what is perceived not to be a problem now may develop adverse impacts at a later date.

2-7 Any odor problems which exist at the present facility should be mitigated to the extent possible before any expansion occurs to ensure that the new facility will not aggravate existing problems. We note that the plant has received numerous complaints about undesirable odors. When construction is completed, we recommend that odors and aerosols be closely monitored to ensure adequate mitigation methods.

2-8 The provision of buffer zones, through appropriate zoning procedures, around all new facilities and adherence to all relevant regulations pertaining to wastewater treatment operations should mitigate potential problems with aerosols and odors.

2-9 For Alternative 2A, sludge "would be disposed by codisposal in a properly designed, operated, and permitted municipal landfill." Was any serious consideration given to composting? Except for certain economical considerations regarding the marketability of end products at experimental plants several years ago, composting was shown to be an effective method of rendering refuse and sewage sludge into a usable, beneficial product for land application. It is possible that composted refuse is more marketable today and should be considered as an alternative.

2-10 It is stated that minor problems with nuisance vectors (e.g., flies and mosquitoes) potentially would occur due to all alternatives. The Final EIS should provide additional information regarding expected impacts the proposed project may have upon local mosquito problems, associated potential health impacts, and appropriate mitigation plans.

2-11 With consideration of our comments, we believe that potential serious impacts associated with the operation of the proposed facility can be minimal if the facilities are designed, operated, and maintained properly. Proper and regular maintenance of collection and treatment components would be essential to maximize efficiency and to prevent adverse impacts.

2-5	See Part II, Section C of the Final EIS, response to Issues 2e and 2
2-6	Health problems from aerosols are not anticipated.
2-7	See Part II, Section C of the Final EIS, response to Issue 1d.
2-8	See Part II, Section C of the Final EIS, response to Issue 1d.
2-9	See Part II, Section C of the Final EIS, response to Issue 2c.
2-10	See Part II, Section C of the Final EIS, response to Issue 2i.
2-11	Comment noted.

Thank you for the opportunity to review this Draft EIS. We would appreciate receiving a copy of the final document when it becomes available. If you have questions regarding our comments, please contact Mr. Ken Holt at (404) 452-4161 or FTS 236-4161.

Sincerely yours,

Frank S. Lisella, Ph.D.
Chief, Environmental Affairs Group
Environmental Health Services Division
Center for Environmental Health

REGION VI

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FORT WORTH REGIONAL OFFICE
221 WEST LANCASTER AVENUE
P.O. BOX 2905
FORT WORTH, TEXAS 76113

IN REPLY REFER TO:

August 22, 1983

Mr. Clinton B. Spotts
Regional EIS Coordinator
U.S. Environmental Protection Agency, Region 6
1201 Elm Street
Dallas, TX 75270

Dear Mr. Spotts:

3-1 Your Draft Environmental Impact Statement (DEIS) for Wastewater Treatment Facilities, City of Fort Worth, has been reviewed in our Dallas Area Office, and it has been determined that the Department of Housing and Urban Development will not have comments on the subject DEIS.

Sincerely,

Victor J. Hancock
Environmental Clearance Officer

RECEIVED
AUG 29 1983
6 ES

AREA OFFICES
DALLAS, TEXAS · LITTLE ROCK, ARKANSAS · NEW ORLEANS, LOUISIANA · OKLAHOMA CITY, OKLAHOMA · SAN ANTONIO, TEXAS

3-1 No response necessary.

United States Department of the Interior
OFFICE OF THE SECRETARY
Office of Environmental Project Review
Post Office Box 2088
ALBUQUERQUE, NEW MEXICO 87103

RECEIVED
AUG 31 1983
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AUG 2 9 1983

ER-83/877

Mr. Clinton B. Spotts
Regional EIS Coordinator
Environmental Protection Agency
Region VI
Inter First Two Building
1201 Elm Street
Dallas, TX 75270

Dear Mr. Spotts:

This responds to your July 1, 1983, notice requesting review and comment on the draft environmental impact statement for the upgrading and expansion of wastewater treatment facilities, for the City of Fort Worth, Texas, and its service area. The following comments are provided for your consideration.

4-1 The selected plan for the wastewater treatment facilities would utilize approximately 500 acres of bottomland along the West Fork of the Trinity River for sludge disposal activities (drying beds). The document states that wetlands and other fish and wildlife habitat will be affected. Representatives of the Fish and Wildlife Service have inspected the project site and have concluded that the project area contains significant riparian fish and wildlife resources. The riparian system of the West Fork in the Fort Worth-Dallas metroplex is being lost to urban developments. Any threat to that habitat which involves Federally funded or permitted activities deserves our close scrutiny.

4-2 Because of the presence of valuable riparian habitat, the Fish and Wildlife Service considers the selected plan unacceptable from a fish and wildlife standpoint, unless significant mitigation features are incorporated into the final project design. Section 1502.14 of the National Environmental Policy Act Regulations requires that an environmental statement (EIS) include appropriate mitigation measures not already included in the proposed action or alternatives. The Service will be willing to assist the agencies involved in developing a mitigation plan for the final EIS which will compensate for losses by improving existing habitat or creating new ones.

4-1 Comment noted.

4-2 See Part II, Section C of the Final EIS, response to Issue 3a.

The proposed project includes several aspects which provide potential for mitigation features. Abandoned gravel pits in the project area could be restored and enhanced for wildlife purposes. Work is already proposed on those areas to control flooding. Existing wetlands adjacent to the old sludge drying beds could be expanded and enhanced when the proposed new levee is constructed at that site. Large mast producing trees, which currently exist in the project area, could be preserved by careful construction procedures. This would provide valuable food and shelter for a number of wildlife species.

4-3 If mitigation measures are not made a part of the final project design, we will consider it necessary to refer the final EIS to the Council on Environmental Quality (CEQ), in the manner prescribed in the CEQ regulations.

4-4 The U.S. Army Corps of Engineers (CE) has provided data for the EIS (pages C-2 through C-5) concerning its determination of the areas at the proposed project which fall under the jurisdiction of Section 404 of the Clean Water Act. Only 4.4 acres of the 494 acres surveyed were considered to be jurisdictional by the CE. We are confused by this interpretation as the discussion of bottomland forest, streamside forest and weedy fields in the EIS lists numerous obligate and facultative wetland vegetation species. The Service, EPA, and CE should re-evaluate the wetland determinations for this project prior to completion of the final EIS.

4-5 The draft statement discusses on page 5-67 an experimental beneficial sludge reuse program. This program could provide benefits for wildlife, and could be an additional mitigative feature. Sludge could be used on wildlife research food plots and other plant species provided for wildlife habitat. However, these activities are proposed outside of the leveed area and sludge containing bacteria and other toxic materials could potentially be washed downstream during major flood events. We believe this practice would be unacceptable and could pose a major hazard to aquatic species and perhaps terrestrial species as well. Such an experimental area should be leveed to protect wildlife resources, as well as human health.

The draft document provides a plan for wastewater treatment for a period of twenty years. It is apparently assumed that by the end of that period the "state-of-the-art" for such treatment will have advanced beyond the need for drying beds. The fact remains that such alternative technology exists now. From a fish and wildlife resource standpoint, we hope such alternatives are given due consideration.

4-6 Although this project will occupy a large area of the Trinity River floodplain, we believe that adequate measures to mitigate adverse impacts to the fish and wildlife resources can be developed. We have identified several potential mitigative measures and other opportunities are probably available.

4-3 See Part II, Section C of the Final EIS, response to Issue 3a. Also see the City's Section 404/10 permit application in Appendix D which includes a fish and wildlife mitigation plan. EPA and the US Army Corps of Engineers believe the City of Fort Worth has incorporated sufficient fish and wildlife mitigation measures into their design of sludge disposal facilities.

4-4 For purposes of the regulatory program under Section 404 of the Clean Water Act, wetlands are defined as those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and which under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. The prevalent vegetation which occurs in the areas identified as wetlands have been shown to be flood tolerant. Most of these species also maintain a competitive advantage in wet soils. Species known to have little tolerance to flooding did not occur within the wetlands. While certain portions of streamside forests and weedy fields in the area do contain some facultative wetland species, other non-wetland species were growing with them in large numbers. Also, the gravel pits in the area are primarily open water without rooted aquatic vegetation and as such are not considered wetlands.

4-5 See Part II, Section C of the Final EIS, response to Issue 3b.

4-6 See Part II, Section C of the Final EIS, response to Issue 3a.

In summary, our major concerns are the lack of mitigation plans in the EIS for losses caused by the selected plan and the restrictive wetland determination that only 4.4 acres of the 500-acre project area are jurisdictional wetlands under Section 404 of the Clean Water Act. Because of these concerns, we may, depending on the proposal included in the final statement, refer this project to the Council on Environmental Quality under Section 1504 of the Council's Regulations for Implementing the Procedureal Provisions of the National Environmental Policy Act. We do, however, wish to coordinate fully and will be pleased to assist in the development of acceptable mitigation plans which can preclude the necessity for referral. Coordination can be initiated by contacting the Field Supervisor, Division of Ecological Services, U.S. Fish and Wildlife Servie, 9A33 Fritz Lanham Building, 819 Taylor Street, Fort Worth, Texas 76102.

Sincerely,

Raymond P. Churan

Raymond P. Churan
Regional Environmental Officer

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102

REPLY TO
ATTENTION OF:

Planning Division

August 31, 1983

RECEIVED
SEP 6 1983
6 ES

Mr. Clinton B. Spotts
Regional EIS Coordinator
EPA Region VI
1201 Elm Street
Dallas, Texas 75270

Dear Mr. Spotts:

We have reviewed the draft environmental impact statement dated July 1, 1983, concerning the proposed wastewater treatment project in Fort Worth, located in Tarrant County, Texas, and have the following comments

5-1 The analysis for the flood insurance study for this reach of the West Fork was done for the Federal Emergency Management Administration by the Corps of Engineers. The changes in development proposed for this report in the vicinty of the existing Village Creek sewage treatment plant area, including the proposed land fill north of the river, were not included in that analysis. After the plans are firmed up, revised analyses should be furnished to FEMA so the report can be updated.

5-2 The U.S. Army Corps of Engineers regulates the discharge of dredged and fill material into waters of the United States and adjacent wetlands, under Section 404 of the Clean Water Act. It appears that this project will be authorized under a general permit issued on a nationwide basis for the discharge of fill material above the headwaters, provided it complies with the conditions listed on the attached sheet.

Further comments from Permits Section of the Operations Division will be provided under separate cover.

Thank you for the opportunity to present our comments.

Sincerely,

H. Roger Hamilton
Chief, Environmental Resources Branch

Enclosure

5-1 The City of Fort Worth submitted proposed development changes and appropriate flood analyses in the vicinity of the Village Creek WWTF to the Federal Emergency Management Agency (FEMA). In a letter dated 7 November 1983, FEMA approved the proposed changes (see Appendix H).

5-2 See comment 5a-1 and response.

DISCHARGES INTO CERTAIN WATERS OF THE UNITED STATES

The U.S. Army Corps of Engineers regulates the *discharge of dredged and fill material* into the waters of the United States under authority of *Section 404* of the Clean Water Act (Public Law 95-217, dated 27 December 1977). A general permit has been issued on a nationwide basis for the placement of dredged and fill material into *certain waters* of the United States. These include: nontidal rivers, streams, and their impoundments, including their adjacent wetlands all of which are located above the headwaters of the stream. *Headwaters* is defined as that point on a nontidal stream above which the average annual flow is less than five cubic feet per second. This permit also authorizes discharges into other nontidal waters of the United States that are not part of a surface tributary system to interstate waters or navigable waters of the United States. Activities authorized under this nationwide permit are subject to the following conditions:

(1) That the discharge will not be located in the proximity of a public water supply intake;

(2) That the discharge will not destroy a threatened or endangered species as identified under the Endangered Species Act, or destroy or adversely modify the critical habitat of such species;

(3) That the discharge will consist of suitable material free from toxic pollutants in toxic amounts;

(4) That the fill created by the discharge will be properly maintained to prevent erosion and other nonpoint sources of pollution;

(5) That the discharge will not occur in a component of the National Wild and Scenic Rivers Systems; and

(6) That the best management practices listed on the reverse side should be followed to the maximum extent practicable.

If your project is to be constructed within the terms of these criteria no further administrative action is necessary. If the project does not fit the criteria you should make application for an individual permit. Application should be made to the District Engineer; **ATTN: Chief, Operations Division, SWFOD-O; P.O. Box 17300; Fort Worth, Texas 76102.** If you have any further questions you may contact the **Permits Section at 817-334-2681.**

BEST MANAGEMENT PRACTICES

In addition to the conditions specified in the nationwide permit, the management practices listed below should be followed to the maximum extent practicable, in the discharge of dredged or fill material allowed under the permit. These practices will minimize the adverse effects of the discharges on the aquatic environment. Failure to comply with these practices may result in action to suspend authorization under the nationwide permit and require an individual permit.

(1) Discharges of dredged or fill material into the waters of the United States should be avoided or minimized through the use of other practical alternatives.

(2) Discharges in spawning areas during the spawning season shall be avoided.

(3) Discharges shall not restrict or impede the movement of aquatic species indigenous to the waters or the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters).

(4) If the discharge creates an impoundment water, adverse impacts on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized.

(5) Discharges in wetlands areas shall be avoided.

(6) Heavy equipment working in wetlands shall be placed on mats.

(7) Discharges into breeding and nesting areas for migatory waterfowl shall be avoided.

(8) All temporary fills shall be removed in their entirety.

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102
October 20, 1983

REPLY TO
ATTENTION OF:
Planning Division

RECEIVED
OCT 21 1983
6 ES

Mr. Clinton B. Spotts
Regional EIS Coordinator
EPA Region VI
1201 Elm Street
Dallas, Texas 75270

Dear Mr. Spotts:

Please refer to our letter dated August 31, 1983 concerning the proposed wastewater treatment project in Fort Worth, located in Tarrant County, Texas.

5a-1 It was stated in that letter that it appears this project will be authorized under a general permit issued on a nationwide basis for the discharge of fill material above the headwaters. Further study of this project shows this statement to be incorrect.

The correct statement is the U.S. Army Corps of Engineers regulates the discharge of dredged or fill material into waters of the United States including adjacent wetlands under section 404 of the Clean Water Act and any work or structure in or affecting navigable waters under Section 10 of the Rivers and Harbors Act of 1899. It appears that your project will require authorization under Section 404 and Section 10.

I hope that this corrected information has reached you in a timely manner and has not caused you any delay in your schedule.

Sincerely,

James C. Chandler
Acting Chief,
Environmental Resources Branch

5a-1 The City of Fort Worth has applied to the US Army Corps of Engineers for permits under Section 404 of the Clean Water Act and Section 10 of the River and Harbor Act of 1899. The Fort Worth District, Corps of Engineers is cooperating with EPA in completing the Environmental Impact Statement for the Fort Worth wastewater treatment facilities and plans to use this document to satisfy their permitting environmental review requirements.

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102

REPLY TO
ATTENTION OF:

September 13, 1983

RECEIVED
SEP 15 1983
6 ES

Office Operationns Branch

Mr. Clinton B. Spotts
U.S. Environmental Protection Agency
6ES-FP
1201 Elm Street
Dallas, Texas 75270

Dear Mr. Spotts:

This is in regard to the Draft Environmental Impact Statement (DEIS) for Wastewater Treatment Facilities: City of Fort Worth, Tarrant County, Texas.

The U.S. Army Corps of Engineers (USCOE) working as a cooperating agency with the Environmental Protection Agency (EPA) has completed a review of the DEIS. Based on this, we have enclosed a list of comments concerning Department of the Army involvement under Section 404 of the Clean Water Act and Section 10 of the River and Harbor Act of 1899.

Thank you for this opportunity to comment on the document. If you have any questions concerning this letter or our comments, you may contact Mr. Brooks Carter at FTS 334-3551.

Sincerely,

Allie J. Majors

Allie J. Majors, P.E.
Chief, Operations Division

Enclosures

COMMENTS ON DEIS FOR WASTEWATER TREATMENT FACILITIES:

CITY OF FORT WORTH, TARRANT COUNTY, TEXAS

6-1	1.5 The statement that 4.4 acres of wetlands would be destroyed (pg 1-10) does not agree with the plans on Figure 5-15 (pg 5-99) since not all wetlands will be destroyed.	6-1	It is correct that only about half of the 4.4 acres of wetlands would be destroyed by the City of Fort Worth's proposal. The EIS has been revised accordingly.
6-2	The project may not involve any work in the West Fork of the Trinity River which would require an individual Section 10 permit but the work may affect the river. Therefore, the statement on page 1-12 should read "..... Section 10 permit for any work or structure in or affecting a navigable water."	6-2	The statement has been changed.
6-3	4.5.2 Table 4-18 indicates that the expansion of the Village Creek plant will have no problems with public acceptance, but residents of Arlington are strongly opposed to the expansion. The narrative on page 4-65 indicates that alternative groups 3,4,5 and 6 were dropped due to public acceptance of smaller odor problems. It appears that the decision to discard these alternatives may have been political rather than environmental and if such were the case, they should have been further evaluated.	6-3	Table 4-18 was developed as a part of the process of screening preliminary alternatives. Apparently through an oversight the "public acceptance" column was not checked for the alternative group which included expanding the Village Creek WWTF. The City of Fort Worth and EPA have recognized since the initiation of this EIS that a number of Arlington citizens opposed the expansion of the plant. The point of the discussion of page 4-65 was that potential odor problems would increase with the construction of satellite treatment plants since the existing Village Creek WWTF would remain under all alternatives.
6-4	4.6.3 Alternative 2 was eliminated over concern for fugitive dust and odors from dedicated land disposal (pg 4-79). The city of Dallas disposes of its sludge using this method at their southside plant and Mr. J. B. Lowry (plant manager) has indicated that odor and dust levels are very low - only one odor complaint has been received by the plant this last year. Therefore, it does not appear that alternative 2 should have been dropped from consideration for the stated reasons.	6-4	Other reasons for eliminating Alternative 2 included: potential odor problems associated with operation of a sludge lagoon at the disposal site; the problems associated with transporting liquid sludge to the site by pipeline (right-of-way) or by truck (traffic); and strong public opposition.
6-5	4.7.1.1 The statement is made on pg. 4-89 that "..... if chemical addition proves unsatisfactory, then additional measures would be taken to assure maximum control of odors." Why did the city decide to go away from covering, scrubbing and flow system improvement operations to chemical addition for odor control? A cost comparison of the two methods is not given. Also, who decides when the odor control is unsatisfactory and how will this decision be made - nothing is said about how bad the odor would have to be before something is done. Also no dates are given as to how long it would take to accomplish any additional construction for odor control should it be needed. How long would the people have to contend with high odor levels? Construction for maximum odor control from the beginning would appear to be prudent given the proximity of the plant to large residential populations (see also pg 5-161).	6-5	See Part II, Section C of the Final EIS, response to Issue 1a.

6-6	4.9 It should be stated that a USCOE permit will be required (instead of "may require") since the project as proposed does require USCOE authorization (see also pg 4-110 and pg 5-66).	6-6	The recommended changes have been made.
6-7	An interconnection line to the TRA treatment plant is mentioned on pg. 4-135 but no location for the line is given making impact analysis impossible.	6-7	Because of a slower increase in flows than anticipated, the City of Fort Worth has dropped the plan to transfer flow on an interim basis to the Trinity River Authority's Central WWTF.
6-8	5.1.5.1 or 5.3.5 There is no discussion of impacts of the flood relief channel on the physical structure of the main channel of the West Fork of the Trinity River.	6-8	See Part II, Section C of the Final EIS, response to Issue 2g.
6-9	5.4.3.2 The second paragraph discusses covering facilities and scrubbing air using the words "would be." This phrasing may lead people to believe that this construction will be done when in reality the city is saying that they won't do it unless unsatisfactory odor problems are encountered.	6-9	See Part II, Section C of the Final EIS, response to Issue 1a.
6-10	5.5.5.1 The statement "..... every effort should be made to minimize activities occurring in wetlands" doesn't indicate any proposal to do so by the city but only an admonishment from the preparer of the DEIS. Since the city has no such proposal, it should be so stated.	6-10	See Part II, Section C of the Final EIS, response to Issue 3a. The sentence in question has been deleted. The City of Fort Worth does intend to minimize effects on wetlands and other fish and wildlife resources where possible as well as to enhance the value of areas owned by the City adjacent to the project site. A fish and wildlife mitigation plan developed by the City is presented in the City's Section 404/10 permit application in Appendix D of the Final EIS.
6-11	5.5.5.2 How would the proposed new channel "..... provide a minor, beneficial amount of habitat for aquatic inhabitants?" A water habitat already exists at the location of the proposed channel and channel construction and leveling of overburden piles may destroy the existing habitat (see also pg 4-110).	6-11	The statement has been deleted.
6-12	5.14 Words such as "can be" and "could be" are used throughout this section but the question is whether these things that could be done to mitigate adverse impacts will be done by the city. If the city has no proposal, this should be pointed out and the DEIS shouldn't imply that mitigative measures will be employed.	6-12	Section 5.14 has been revised to reflect mitigation which the City of Fort Worth plans to incorporate into its plan.
6-13	On page 5-160 the DEIS indicates that impacts of construction on aquatic biota will be short-term but some of the proposed construction will permanently destroy aquatic habitat in wetlands and gravel pits.	6-13	The EIS has been revised to reflect the long-term impacts. Also see Part II, Section C of the Final EIS, response to Issue 3a.
6-14	On page 5-162 it is said that floodplain storage capacity will be lost due to increased impervious cover in watersheds. It is more likely that an increase in flow volumes will be the result - not a loss of storage capacity.	6-14	In this context floodplain storage capacity was intended to include percolation/soil saturation effects as opposed to strictly lake/reservoir/pond/channel storage. However, the wording may be misleading. Therefore, the recommended change has been made.
6-15	The disturbance of vegetation and wildlife habitat is listed as an unavoidable adverse impact but there is no discussion of wetland losses or mitigation for lost wildlife habitat in this section. Informal discussions between the city, U.S. Fish and Wildlife Service, USCOE, and the Environmental Protection Agency have produced potential mitigatory actions. If the city has any proposals, it should come forth with them so that they can be evaluated.	6-15	See Part II, Section C of the Final EIS, response to Issue 3a.

OFFICE OF THE GOVERNOR
STATE CAPITOL
AUSTIN, TEXAS 78711

MARK WHITE
GOVERNOR

October 21, 1983

RECEIVED
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EPA
REGION VI
OFFICE OF REGIONAL
ADMINISTRATOR

Mr. Dick Whittington, P.E.
Regional Administrator
U.S. Environmental Protection Agency
Region 6 Office
1201 Elm Street
Dallas, Texas 75270

Dear ~~Mr.~~ Dick Whittington:

The Governor's Office has received the Draft Environmental Impact Statement on the Upgrading and Expansion of Wastewater Treatment Facilities for Fort Worth, Texas and its Service Area. The state Environmental Impact Statement number assigned to this project is 3-07-50-049.

7-1 Review comments indicate there is omission of necessary information such as landfill design specifications, ultimate sludge reuse, and comprehensive odor reduction measures from this impact statement. The Texas Department of Health and the Texas Department of Water Resources have particular concerns which are requested to be resolved prior to this project proceeding.

Comment from state agencies are enclosed for your consideration to review this project. Please contact this office if we may provide further assistance.

Sincerely,

William C. Hamilton
Governor's Budget Director

dfm

Comments enclosed: State Department of Highways and Public Transportation
Texas Air Control Board
Texas Department of Health
Texas Department of Water Resources

7-1 See responses to comments from Texas State agencies (comment letters 8 through 13).

COMMISSION
ROBERT H. DEDMAN, CHAIRMAN
JOHN R. BUTLER, JR
ROBERT C. LANIER

STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION
DEWITT C. GREER STATE HIGHWAY BLDG.
11TH & BRAZOS
AUSTIN, TEXAS 78701

ENGINEER-DIRECTOR
MARK G. GOODE

September 7, 1983

IN REPLY REFER TO
FILE NO.
D8-E 854

Draft EIS #3-07-50-049
Fort Worth Wastewater Treatment Facilities

Mr. Harden Wiedemann, Director
Governor's Office of Planning &
Integovernmental Relations
Sam Houston Building
Austin, Texas

Dear Mr. Wiedemann:

Thank you for the opportunity to review the draft environmental impact statement covering the upgrading and expansion of wastewater treatment facilities for Fort Worth and its service area.

The proposed project will not affect existing or proposed facilities on the State Highway system.

Sincerely yours,

M. G. Goode
Engineer-Director

By: Marcus L. Yancey, Jr.
Marcus L. Yancey, Jr.
Deputy Engineer-Director

8-1 No response necessary.

TEXAS AIR CONTROL BOARD

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FRANK H. LEWIS
R. HAL MOORMAN

September 2, 1983

Mr. Harden Wiedemann, Director
Office of Planning and
  Intergovernmental Relations
Intergovernmental Section
P. O. Box 13561
Austin, Texas 78711

Subject: Fort Worth Wastewater Treatment Facilities
EIS Number 3-07-50-049

Dear Mr. Wiedemann:

9-1 We have reviewed the above cited document concerning the Village Creek Wastewater Treatment Plant and have found that several aspects of the project are directly impacted by the "nuisance" portion of the Texas Clean Air Act. Our comments were previously submitted to the Environmental Protection Agency on August 26, 1983, for inclusion in the hearing record. Our concerns were also expressed in correspondence of January 18, 1983, to Mr. Charles Nemir, Executive Director of the Texas Department of Water Resources. We have enclosed copies of this correspondence and wish them to serve as our comments on this proposed project.

Thank you for the opportunity to review this document. If we can be of further assistance, please contact me.

Sincerely,

Alex Opiela, Jr., P.E.
Deputy Director
Standards and Regulations Program

Enclosures

Celebrating 150 Years of Texas Independence 1836 - 1986

9-1 See responses to Comment Letter 9a.

TEXAS AIR CONTROL BOARD

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August 26, 1983

RECEIVED
AUG 29 1983
6 ES

Mr. Clinton B. Spotts
Regional EIS Coordinator
U.S. Environmental Protection Agency
Region VI
InterFirst Two Building
1201 Elm Street
Dallas, Texas 75270

Dear Mr. Spotts:

We have reviewed the draft Environmental Impact Statement (EIS) concerning the expansion of the Village Creek Wastewater Treatment Plant in Fort Worth. As outlined in the 1981 Memorandum of Understanding between the Texas Air Control Board (TACB) and the Texas Department of Water Resources (TDWR), the TDWR has retained primary responsibility for regulating facilities such as the Village Creek plant. In accordance with this memorandum, the TACB submitted comments to the TDWR concerning odor control at the Village Creek plant in a letter to Mr. Charles E. Nemir, Executive Director, TDWR, dated January 18, 1983 (copy enclosed). Below are comments on the draft EIS, offered as an extension of our previous comments to the TDWR.

9a-1 The draft EIS points to the public's strong disapproval of odors at the plant (Pages 1-3, 3-13) and concern that expansion plans adequately address existing and future odor problems (Pages 3-15, 6-1). The draft also points out that residents are adversely affected by periodic undesirable odors (Pages 1-10, 4-11) and that this is a serious environmental concern (Page 5-79). We share this concern and are pleased that this is viewed as a key issue by the City of Fort Worth (Page 4-76).

9a-2 We believe the City has demonstrated its commitment toward odor reduction at the Village Creek plant through improvements in staffing, training, and plant operations; through the routine addition of chemicals to the influent; and through projects such as the addition of air scrubbers and bar screen enclosures. The following comments are offered to assist the City in implementing its expansion proposal, identified in the draft EIS as Alternative 2B, with maximum consideration of odor control.

Celebrating 150 Years of Texas Independence 1836 - 1986

9a-1 Comment noted.

9a-2 Comment noted.

9a-3 The City's original proposals called for covering and air-scrubbing all pretreatment units, all primary clarifiers, and all sludge thickening and dewatering units (Pages 4-76, 4-88). The current proposal is to experiment with continuous chemical addition and to explore covering and air-scrubbing only if chemical addition proves unsatisfactory. As noted in the draft EIS (Page 5-87), plant odors will be more intense during periods of system upset, such as that caused by heavy organic loading or toxics in the influent or by equipment malfunction. As much as 30-40% of the existing 96 million gallons per day (mgd) influent is from industrial sources, with the possibility of heavy organic loading (Pages 4-21 through 4-24). Also, equipment malfunctions do occur at the Village Creek plant, as they do at all plants. It does not appear that chemical addition alone would offer maximum odor control during such periods. Further, the proposed 40% influent increase (from 96 mgd to 137 mgd) and the increases in surface areas of the treatment systems (for example: a 29% primary clarifier surface area increase) would, even under ideal loading and equipment conditions, result in increased odor potentials. It is our opinion that covering and air-scrubbing of the primary clarifiers will be needed in order to provide continuous maximum odor control under the wide variety of conditions found at the sewage treatment plant.

9a-3 See Part II, Section C of the Final EIS, response to Issue 1a.

9a-4 We recommend the existing treatment units be covered as soon as possible during the first phase and new treatment units built with covers and air scrubbers to allow for immediate and continuous control as they come on line. The schedule for the installation of covers and air scrubbers should be built into the final EIS and the installation provided for in the funding structure of the document. Until the covers are installed, the addition of chemicals to the influent should be increased to assure that maximum odor reduction is achieved. Following installation of the covers and scrubbers, the addition of chemicals would then be on a routine basis.

9a-4 See Part II, Section C of the Final EIS, response to Issue 1a.

9a-5 We note that the matter of operational disruptions during expansion construction and the potential for associated odor-related problems are not discussed. During the last expansion construction project, unpaved roads and paths and activities such as the inadvertent covering of valves and access ports created a lack of access to equipment for inspection, maintenance, and repair, and created operational problems resulting in increased plant odors and nuisance odor conditions. Temporary paving, mapping of all valves and access ports, methods to minimize construction time, and other procedures should be specified to assure orderly operations during construction.

9a-5 See Part II, Section C of the Final EIS, response to Issue 1e.

9a-6 The City has proposed constructing sludge dewatering and landfilling facilities, but has proposed keeping the drying beds for use under "emergency conditions" (Page 1-6). The drying beds have been identified as a major source of odors (Pages 3-13, 4-11, 4-76, 5-79). We feel that, in order to minimize the potential for nuisance odors, the sludge should be landfilled during any emergency condition. Also,

9a-7 it is important that the new dewatering and storage methods not create

9a-6 See Part II, Section C of the Final EIS, response to Issue 1b.

9a-7 See Part II, Section C of the Final EIS, response to Issue 1c.

additional odor sources. The original proposal to enclose and air-scrub the dewatering facility indicates concern that the sludge has odor-creating potential. We feel that this dewatered sludge should not be stockpiled but should be placed immediately in the landfill and covered to prevent odor problems as outlined on Page 5-90.

9a-8 If stockpiling is elected, the outdoor storage, drying, and composting areas should contain, in total, certainly no more than one week's accumulation of dewatered sludge. We also recommend immediate land-filling of improperly digested sludge (resulting from system upsets, breakdowns, etc.), and that all drying and composting take place within the allotted 10 acre site.

9a-9 The City proposes various sludge reuse experiments on site (Page V-26 of the Draft Facilities Plan). As these projects could generate substantial odors during and following flood conditions (Page 5-91), the projects should be conducted on very small scales with an upper limit set on the total amount of sludge in experimental use at any one time.

9a-10 The City's original proposals called for installation of grit removal facilities in front of the primary clarifiers to reduce maintenance problems for the sludge handling equipment (Pages 4-76, 4-88). This was identified as a key issue regarding maintenance problems (Page 4-75). The new proposal does not call for such facilities. Because of the odor potential of primary sludge, it is important to minimize sludge handling problems. Therefore the originally proposed grit removal facilities should be retained.

9a-11 Finally, as a matter of note, there are no portions of Tarrant County
which are currently listed as non-attainment areas for particulate
(Page 5-73). Also, the National Ambient Air Quality Standard for ozone
9a-12 is listed on Page 5-78 as 0.08 parts per million (ppm) instead of the
current 0.12 ppm.

Thank you for the opportunity to comment on this matter.

Sincerely,

Eli Bell

Allen Eli Bell, Deputy Director
Control and Prevention Program

Enclosure

cc: Mr. Charles E. Nemir, Executive Director, Texas Department of Water Resources
Mr. Richard W. Sawey, Director, Fort Worth Water Department
B. Brooks Taylor, M.D., M.P.H., Director, Public Health Department, Fort Worth, Tarrant County

9a-8 See Part II, Section C of the Final EIS, response to Issue 1c.

9a-9 See Part II, Section C of the Final EIS, response to Issue 1c.

9a-10 See Part II, Section C of the Final EIS, response to Issue 1f.

9a-11 This information has been added.

9a-12 The standard for ozone has been corrected.

JAN 18 1983

Mr. Charles E. Nemir, Executive Director
Texas Department of Water Resources
Post Office Box 13087, Capitol Station
Austin, Texas 78711

Re: Status Report on Odor Control
Project
Village Creek Wastewater
Treatment Plant
Account No. TA-0512-K

Dear Mr. Nemir:

In accordance with the March 4, 1981 Memorandum of Understanding between our agencies and with discussions between our staffs, we have reviewed the letter dated September 27, 1982 from Mr. Richard Sawey, City of Fort Worth, to Mr. Harvey Davis providing the status of various odor control projects at the Village Creek Wastewater Treatment Plant. The following comments are offered.

The projects completed and underway demonstrate that progress is being made with regard to the commitment that representatives from the City and the plant have made toward odor reduction at the facility. We feel that with the completion of the projects, coupled with improvements in staffing, training and plant operations, and with the routine addition of appropriate amounts of chlorine and hydrogen peroxide to the influent, the City is reducing odor potentials in several areas of the plant.

We have identified the sludge drying beds and the primary clarifiers as areas that have major nuisance potential and are pleased that both sources are addressed in the list of projects. Although the City has committed to eliminate the drying beds, we believe that clarification is needed with regard to control measures that will be taken to assure that nuisance odors are not created during the dewatering and sludge handling activities. Also, the City has not decided upon a method to control odors from the primary clarifiers but has proposed chemical

See responses to Comment Letter 9a.

addition to the wastewater, doming and air scrubbing, or some other acceptable alternative. We will be happy to assist in the evaluation of alternatives if requested, but offer these comments at this time with regard to chemicals and doming. We believe that the addition of chemicals, although helpful, is not a complete solution as the sewage in the clarifiers originates from a wide variety of industrial, commercial, and residential sources and travels long distances within the collection system providing a medium for generating highly odorous material. In addition, the large surface areas of the clarifiers facilitate the release of these odors.

If maximum odor reduction in this area is to be achieved, all primary clarifiers should be domed and air scrubbers installed. However, until the domes are installed, the addition of chemicals to the influent should be increased to assure that maximum odor reduction is achieved. Following installation of the domes and scrubbers, the addition of chemicals could then be on an as-needed basis, such as during maintenance activities. We would also suggest that the air scrubbers should have high odor-reduction efficiency and feel that activated carbon may be the best choice for this installation unless an equally effective alternative is proposed.

Thank you for the opportunity to comment on this important matter. We appreciate the willingness that your staff and representatives of the City of Fort Worth have shown in working with us toward reducing nuisance odors at the plant.

Sincerely,

ORIGINAL SIGNED
BY BILL STEWART

Bill Stewart, P.E.
Executive Director

cc: Mr. Melvin Lewis, Regional Supervisor, Fort Worth
Mr. C. R. Miertschin, Director, Enforcement and Field Operations, Texas Department of Water Resources, Austin
Mr. Richard Sawey, Director, Texas Department of Water Resources, Fort Worth
bcc: Mr. Earnest Casstevens, Attorney, McGuinnis, Lockridge, and Kilgore, Austin
Mr. James C. Webb, Supervisor, Air Pollution Control, Public Health Department, Fort Worth
BST/EAE/CLB/JP/GR/kmh, Board, File (TDWR/VILLAGE CK #2)

Texas Department of Health

Robert Bernstein, M.D., F.A.C.P.
Commissioner

1100 West 49th Street
Austin, Texas 78756
(512) 458-7111

Robert A. MacLean, M.D.
Deputy Commissioner
Professional Services

Hermas L. Miller
Deputy Commissioner
Management and Administration

August 29, 1983

Mr. Harden Wiedemann, Director
Governor's Office of Planning and
  Intergovernmental Relations
P. O. Box 13561, Capitol Station
Austin, Texas 78711

AUG [illegible] 1983

Attention: Intergovernmental Section

Subject: City of Fort Worth -- Wastewater
    Treatment Facilities
  Environmental Impact Statement (EIS)
  Tarrant County, Texas
  U. S. Environmental Protection Agency
  Governor's Office of Planning and
    Intergovernmental Relations
  Draft EIS No. 3-07-50-049

Dear Mr. Wiedemann:

The Draft copy of the Environmental Impact Statement -- Wastewater Treatment Facilities/City of Fort Worth, Tarrant County, Texas has been reviewed for its public and environmental health implications. The document was prepared by the U. S. Environmental Protection Agency; it is dated July 1983.

The Draft EIS concerns the awarding of a construction grant under Section 201 of the Clean Water Act for the upgrading and expansion of wastewater treatment facilities for Fort Worth, Texas and its service area. The EIS has been prepared concurrently with the wastewater treatment facilities plan under a grant from the U. S. Environmental Protection Agency.

Mr. Warren Wiedemann
Page Two
August [illegible], 1981

The City studied four sludge management alternatives, identified in the report as alternatives 1, 2A, 2B, and 3. Through a process of evaluation and elimination, the City chose alternative 2B as the preferred method of sludge management. Therefore, our comments address only that proposed management system, although all alternatives were reviewed.

This alternative involves the temporary storage and landfilling of dewatered sludge at a proposed site in the West Fork Trinity River basin approximately 3,000 feet north of the Village Creek treatment plant. Dewatering will take place at the landfill site and sludge will be stockpiled for an unspecified time to further reduce the water content and then disposed in a sludge-only landfill. All the pertinent issues are addressed, i.e., odor control, groundwater and surface water protection, future beneficial reuse of sludge and state and federal agency requirements, including the requirement for a Department of Health permit for the landfill facility.

There is a potential for surface water and groundwater contamination because the proposed landfill site is located in a floodplain and in alluvium soils. These conditions are mitigated by plans to construct cut-off walls around the landfill tying the walls into relatively impermeable shale. The City also plans a flood control levee around the site and a diversion of floodwaters into a gravel pit to compensate for the loss of flood storage taken by the leveed area. The environmental consequences are addressed.

10-1 An area not fully explored in the EIS is the future reuse of sludge for beneficial purposes, i.e., agricultural. The sludge quality is such that opportunity for reuse would be limited because of the cadmium content of the sludge.

The Texas Department of Health (TDH) appreciates the opportunity to review and comment on the Draft copy of the Wastewater Treatment Facilities/City of Fort Worth EIS.

Sincerely,

for David R. Cochran, P.E.
Associate Commissioner for Environmental
and Consumer Health Protection

MWR:fbk

cc: Public Health Region 5, TDH
Water Hygiene Division, TDH
Bureau of Solid Waste Management, TDH

10-1 See Part II, Section C of the Final EIS, response to Issue 2e.

TEXAS DEPARTMENT OF WATER RESOURCES
1700 N. Congress Avenue
Austin, Texas

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Executive Director

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August 13, 1983

[illegible] 1983

Mr. Harden Wiedemann, Director
Governor's Office of Planning
  and Intergovernmental Relations
Intergovernmental Section
P. O. Box 13561
Austin, Texas 78711

Dear Mr. Wiedemann:

Subject: Environmental Protection Agency (EPA)—Draft Environmental Impact Statement (DEIS) Report No. EPA 906/9-83-008: WASTEWATER TREATMENT FACILITIES—CITY OF FORT WORTH, TARRANT COUNTY, TEXAS. (State Reference File: EIS #3-07-50-049)

In response to your July 27 memorandum, the Texas Department of Water Resources (TDWR) staff has reviewed the subject DEIS on the City of Fort Worth's proposed phased 20-year, estimated $183 million Section 201, Clean Water Act construction grant project to expand the treatment capacity of the existing diked Village Creek Wastewater Treatment Facility (WWTF) from 96 million gallons per day (mgd) to 137 mgd; to establish a diked 500-acre sludge dewatering and disposal facility including a sludge landfill, located north of the WWTF in the 100-year floodplain of the West Fork Trinity River; and for other related purposes. (I.e., Alternative Plan 2B). TDWR offers the following staff review comments:

1. We note that the scope of analysis and the finality of conclusions expressed in the DEIS have been limited or qualified by the following important factors:

11-1 a. The type of sludge-landfill design to be used has not yet been specified (see sec. 5.2.5, p. 5-45).

11-2 b. TDWR is in the process of developing a new pollutant wasteload evaluation for the Water Quality Segment No. 0805 of the West Fork Trinity River—the "water quality limited" segment of the river, in which the project drains or discharges (see sec. 5.3.1.2, p. 5-55). The NPDES permit for the present Village Creek WWTF expired in 1977, and administratively extended temporarily. No final decision on future permit limitations has yet been made by TDWR and EPA pending the outcome of additional water quality and mathematical modeling studies to develop effluent limitations necessary to insure the attainment of the revised water quality standards. (see sec. 5.3.1.2, p. 5-60).

11-1 At present, the City of Fort Worth proposes to utilize Method 1 or Method 4 (see pages 4-107 to 4-109 of the Draft EIS). The exact method to be used will be determined in the final design.

11-2 In March 1981, the TDWR reclassified Segment 0805 on the upper Trinity River, by removing the beneficial use of propagation of fish and wildlife and lowering the dissolved oxygen criteria. Based on mathematical modeling performed during the Water Quality Standards revision process it was shown that effluent limitations of 10 mg/l BOD_5 and 15 mg/l TSS at the four major wastewater treatment plants would be sufficient to protect the current standards through 1990. On 3 June 1983, the TDWR modified the Water Quality Management Plan for the upper Trinity River to reflect the revised water quality standards for Segment 0805, therefore, the effluent set of 5-5-3 (mg/l BOD_5, TSS, NH_3-N) no longer represents the appropriate final limitations for the Village Creek wastewater treatment system.

In approving the revised wasteload allocation, EPA supported the TDWR's recommendation of additional water quality studies on Segment 0805 to further evaluate the water quality impact of the recently improved wastewater quality of the major dischargers. The TDWR has completed two intensive surveys and currently is in the process of calibrating an updated water quality model for the upper Trinity River. This additional data and improved water quality model which will utilize the flow projections included in Fort Worth's facilities plan and this EIS, are expected to improve the ability to predict and evaluate the river's response to future increasing wasteloads.

11-3 c. There is some doubt whether proposed sludge reuses in the 200-acre area outside of leveed areas, as indicated in section 5.3.5 (p. 5-67) (i.e., "landspreading of dewatered sludge and/or surface injection of liquid sludge") will be found to be feasible and permissible under the provisions of 40 CFR Part 257, the implementing regulations of the Resource Conservation and Recovery Act. (see sec. 5.3.5, p. 5-67 & -68).

2. Reference is made to Fig. 4-13 (p. 4-106), Fig. 5-13 (p. 5-53), and the following statements on page 5-52:

> "This floodplain and floodway information as determined by the COE is preliminary subject to change."
>
> . . . .
>
> "Construction of dikes and levees must be permitted by TDWR."

TDWR offers the following additional information and clarification:

11-4 a. The Village Creek WWTF is out of the floodway of the West Fork Trinity River. TDWR has already reviewed the WWTF levee plans, pursuant to section 16.236 of the Texas Water Code. TDWR determined that the WWTF levee is out of the floodway and that no new application need be filed with the TDWR for Approval of Reclamation Project.

11-5 b. The City of Fort Worth has already filed with TDWR an Application for Approval of Reclamation Project relative to the ring levee for the existing sludge-drying beds. If the levee is relocated as indicated in Fig. 4-13 (p. 4-106), or if the pending revised Federal Emergency Management Administration (FEMA) maps will show the floodway boundary as depicted in Fig. 5-13 (p 5-53), TDWR staff will determine the levee to be out of the 100-year floodway of the West Fork Trinity River, and recommend dismissal of the application as unnecessary, pursuant to TDWR Rule 315.1 (F).

11-6 c. The proposed 500-acre Sludge Disposal Facility with flood channel and landfill, is under the approval authority of the City of Fort Worth by virtue of the city's participation in the National Flood Insurance Program and the authority contained in section 16.236 (d)(3) and (f) of the Texas Water Code. Therefore, an application for permit need not be submitted to TDWR. The statement in section 5.35 (p. 5-66) of the subject DEIS should be revised accordingly.

11-7 3. Notwithstanding the above important limitations in available data, the subject DEIS does establish a strong basis for the construction of levees related to this proposed project designed to protect the ringed facilities from the Standard Project Flood (SPF). We note that the existing levees

11-3 See Part II, Section C of the Final EIS, response to Issue 2e.

11-4 Comment noted.

11-5 Comment noted.

11-6 The referenced statement in Section 5.3.5 of the Draft EIS has been revised.

11-7 Correct flood elevations for the Trinity River in the vicinity of the Village Creek WWTF are as follows: 100-year flood - 478 feet above msl; 500-year flood - 483.9 feet above msl; Standard Project Flood (SPF) - 485.5 feet above msl. Section 5.3.1.1 has been revised to reflect this information.

have a top elevation of 484.0 feet above mean sea level (msl), originally considered adequate for the 100-year flood frequency. The SPF would require an elevation of 484.5 feet above msl. However, it is noted that new preliminary Corps of Engineer studies indicate that 483.9 feet above msl might be adequate for SPF protection. (see sec. 5.3.1.1, pp. 5-51 & -52). We believe that further consideration should be given to the long-term benefits which would accrue to the city, the region, and the state by the adoption of the SPF levee design criteria. This suggestion stems from our consideration of the extensive and rapid rate of regional development and population growth projected for the region; the magnitude of the capital investment already made and planned in the floodplain development; the vital necessity and importance of this infrastructure facility to the proper continued development and growth in the region; and the great potential property loss and damage due to flooding.

11-8 4. Reference is made to the City of Arlington landfill levees, downstream of the Village Creek WWTF complex (see DEIS, p. 5-52). TDWR approved the Arlington project (Re 0054) on October 15, 1979.

11-9 5. Reference is made to the statement relative WWTF odors (DEIS, p. 5-162—Unavoidable Adverse Impacts). We believe that odors can be reduced so as to be virtually undetectable if the facilities are properly designed and operated. One of the primary reasons and justifications for the subject project was to reduce odor problems. The problem is not an "unavoidable adverse impact."

Sincerely,

Charles E. Nemir
Executive Director

The U.S. Army Corps of Engineers also has recommended that the City of Fort Worth design the levees around the proposed sludge disposal area to a height that would protect against floods greater than the 100-year flood. Based on the recommendations of the TDWR and the Corps, the City of Fort Worth has decided to design the sludge disposal area level to a height of 485.5. feet above msl. The tops of the levee would then be at the level of the SPF. The levee would actually protect against a flood between the 100-year flood and the 500-year flood. This is due to the fact that the last 2 or 3 feet at the top of the levee would be needed as a buffer to protect against the surface being washed away. Construction of the levee at a height of 485.5 feet above msl would satisfy all current state and Federal regulatory requirements. It would also provide an allowance for protection against future increases in the base flood which might occur due to extensive development upstream. This approach should satisfy the concern of the TDWR and the Corps about potential future structural damage and environmental impact from flooding.

11-8 This information has been included in the Final EIS.

11-9 See Part II, Section C of the Final EIS, response to Issue 1g.

[illegible] F. CHRISTIAN, AUSTIN
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CURTIS TUNNELL
EXECUTIVE DIRECTOR

P.O. BOX 12276
AUSTIN, TEXAS 78711
(512) 475-3092

August 8, 1983

Mr. Clinton B. Spotts
Regional EIS Coordinator
(6ES-F)
First International Building
Environmental Protection Agency
1201 Elm Street
Dallas, Texas 75270

Re: DEIS - Wastewater Treatment
Facilities, City of Fort Worth,
Texas

Dear Mr. Spotts:

12-1 We have reviewed the document referenced above. We look forward to future consultation and coordination on this undertaking, pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended.

We would be pleased to receive a copy of the final EIS. Thank you.

Sincerely,

Patricia E. Patterson for
LaVerne Herrington, Ph.D.
Deputy
State Historic Preservation
Officer

PEP/LH/lft

The State Agency for Historic Preservation

12-1 The City of Fort Worth is designing its collection system to avoid the cultural resource site identified as potentially significant by the Texas Department of Water Resources and the Texas Historical Commission. Therefore, implementation of the City of Fort Worth's preferred alternative would have no effect on cultural resources.

GEORGE E. CHRISTIAN, AUSTIN
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TEXAS HISTORICAL COMMISSION
P.O. BOX 12276
AUSTIN, TEXAS 78711
(512) 475-3092

November 23, 1983

RECEIVED
NOV [illegible] 1983

Mr. Clinton B. Spotts
Regional EIS Coordinator
(6ES-F)
First International Building
Environmental Protection Agency
1201 Elm Street
Dallas, Texas 75270

Re: DEIS - Wastewater Treatment
Facilities, Fort Worth, Texas
C-48-1323

Dear Mr. Spotts:

12a-1 Subsequent to our August 8, 1983, letter on the above referenced project, we have been provided with additional data by the Construction and Grants Water Quality Management Division, Texas Department of Water Resources. Based on that information we have concluded that the only properties within the project or affected areas potentially eligible for the National Register of Historic Places are archeological sites 41PR65 and 66. If these sites are avoided during construction (as it is currently planned), then the project will have no effect upon properties listed or eligible for listing on the National Register, and work may proceed as scheduled. Should revisions in construction require impact to either archeological site, then the site should be tested to determine its eligibility to the National Register.

12a-2 We also alert you to the possibility that there may be subsurface sites in the project area which may be eligible for inclusion in the National Register. If buried cultural remains are discovered during construction, work should cease in that area and federal regulations (36 CFR, 800.7) should be followed. EPA and the Department of the Interior (202-343-4101) should be notified. Please also contact our office at 512/475-3057.

Thank you for the opportunity to comment.

Sincerely,

LaVerne Herrington

LaVerne Herrington, Ph.D.
Deputy
State Historic Preservation
Officer

NK/LH/lft

cc: Emory G. Long, TDWR

The State Agency for Historic Preservation

12a-1 Comment noted.

12a-2 A condition would be included in any wastewater treatment facilities construction grant which would require the City of Fort Worth to halt work if buried cultural remains are discovered during construction until measures are taken to comply with appropriate Federal regulations.

TEXAS
PARKS AND WILDLIFE DEPARTMENT
4200 Smith School Road Austin, Texas 78744

CHARLES D. TRAVIS
Executive Director

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OFFICE OF REGIONAL
ADMINISTRATOR

September 1, 1983

Mr. Dick Whittington, P.E.
Regional Administrator
U. S. Environmental Protection Agency
Region 6
1201 Elm Street
Dallas, Texas 75270

Re: Wastewater Treatment Facilities/City of Fort Worth
Tarrant County, Texas
Draft Environmental Impact Statement

Dear Mr. Whittington:

13-1 From the information provided on this project in the Draft Environmental Impact Statement, this agency can foresee no apparent significant adverse impacts that should result upon extant wildlife resources.
13-2 This agency would prefer Alternative 3 or 1, in that order, to avoid damages to wetlands.

I appreciate the opportunity to review and comment on this project.

Sincerely,

Charles D. Travis
Executive Director

CDT:RWS:jlm

RECEIVED
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6 ES

13-1 Comment noted.

13-2 Comment noted. Currently Alternative 2B is the preferred alternative of the City of Fort Worth.

Office of the City Manager

August 24, 1983

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AUG 29 1983
6 ES

Mr. Clinton B. Spotts
Regional EIS Coordinator
U.S. Environmental Protection Agency
Region 6
1201 Elm Street
Dallas, Texas 75270

RE: Comments on Wastewater Treatment Facilities, City of Fort Worth, Texas

The City of Arlington has reviewed the draft environmental impact statement and facilities plan for the above referenced project. Pursuant to the review we are concerned that three areas have not been adequately addressed. The three areas are as follows:

1. Odor Control
2. Elimination of Existing Sludge Drying Beds
3. Co-Disposal of Sludge

More specifically the comments and/or questions related to these three areas are as follows:

ODOR CONTROL

EIS
Page 1-6
Section 1.4

It is stated in the seventh line from the top of the page that "odor control by chemical addition or other effective methods" would be included in the new or or modified treatment units for the expanded Village Creek WWTF.

14-1 COMMENT: Odor control in the past by chemical addition has not proven to be effective and the phrase "other effective methods" is not specific enough. The EIS cannot adequately address the impact of odors and their control because the facilities plan is too general and does not define what the other effective methods are.

14-1 See Part II, Section C of the Final EIS, response to Issue 1a.

EIS
Page 1-10
Section 1.5

Starting with the second line, top of the page it is stated:

> "With all alternatives, odor control by chemical addition or other effective methods would be utilized. This would result in a reduction in the magnitude and frequency of adverse odors."

14-2 COMMENT: This is essentially the same type of verbiage that was used and promise that was made in the 1972 Environmental Impact Statement. History has shown that odors were, in fact, not successfully controlled by chemical addition alone. The Facility Plan should be amended to more specifically document the type of other effective methods available so the EIS can be amended to adequately address the impact of each.

14-2 See Part II, Section C of the Final EIS, response to Issue 1a.

EIS
Page 4-10
Section 4.1.2.2

Second paragraph, lines five, six, seven and eight state that excess sludge that cannot be handled by the centrifuges is sent to a converted clarifier which operates as a gravity thickener. It further states that the converted clarifier can also be used as a pre-thickener before the centrifuges.

14-3 COMMENT: If this clarifier is to be used under the same conditions when the plant is expanded, this clarifier should be covered and the air scrubbed with the state-of-the-art scrubbing (i.e., GAC scrubbing or another effective means of odor neutralization.)

14-3 See Part II, Section C of the Final EIS, response to Issue 1a. The referenced clarifier is now used as a pre-thickener for waste activated sludge. Fort Worth plans to convert it back to use as a clarifier in the first phase of the proposed expansion. The facilities plan includes a new waste activated sludge pre-thickener. It would be covered and the exhaust air scrubbed.

EIS
Page 4-107
Section 4.7.3.2 Second paragraph, next to the last sentance states:

"Sludge, then, would be stock piled for disposal."

14-4 QUESTION: What type of odor control measures will be practiced to eliminate problems arising in the stock pile area?

14-4 See Part II, Section C of the Final EIS, response to Issue 1c.

EIS
Page 5-90
Section 5.4.5.2 Next to the last sentence at the bottom of the page states:

"Dewatered sludge would not typically produce odors during hauling or stock piling efforts."

14-5 COMMENT: Referring back to page 5-87 and 5-88, Section 5.4.3.2, the last two lines at the bottom of page 5-87, and the first two lines at the top of page 5-88, it is clearly stated:

"However, if the area were to develop with residential/commercial facilities during the planning period, impact of odor on residential developments, near the sludge stock pile could be substantial."

14-5 The two statements refer to different alternatives. Under Alternative 1 (page 5-87 and 5-88), the sludge stockpile would be uncovered, whereas under Alternative 2B, the stockpile would be covered. Also the stockpile under Alternative 1 would be larger than under Alternative 2B. Regardless, odors could be generated from the sludge stockpile proposed for Alternative 2B. Measures to reduce the potential for odor problems are discussed in Part II, Section C of the Final EIS, response to Issue 1c.

This seems to be a direct contradiction to the statement on page 5-90. If stock piling of sludge causes odor problems the facility plan should then be amended to include the proper mitigative measures.

EIS
Page 5-91
Section 5.4.5.2 Second paragraph, last sentence states:

> "Substantial odors potentially would be generated when sludge deposited in the flood plain becomes wet during the following flood conditions."

14-6 COMMENT: The Facility Plan should be amended to specifically require that all sludge be deposited within the diked area and none in the flood plain.

EIS
Page 5-161
Section 5.14.2 Last paragraph states that the odors from the Village Creek WWTF would be controlled to a great extent by chemical addition practices. It further states that if odor control by chemical addition is unsatisfactory, state-of-the-art air collection and scrubbing could be installed at key odor producing locations.

14-7 COMMENT: It seems as though this is the same approach that was taken in the 1972 EIS which has proven through historical performance that it was the wrong approach and did not work. The facility plan should be amended to include the installation of state-of-the-art air collection and scrubbing facilities now at all key odor producing locations.

14-6 See Part II, Section C of the Final EIS, response to Issue 1c. Any sewage sludge applied to areas in the floodplain would be incorporated into the soil, thereby reducing the potential for the generation of significant odors following flood events.

14-7 See Part II, Section C of the Final EIS, response to Issue 1a.

Facilities Plan
Page V-43
Section 5

First paragraph it is stated:

> "Becasue of the Village Creek Plant location, in a valley overlooked by residential neighborhoods, the most effective odor control program possible must be implemented and maintained. This is essential to the plants continued use at its present location. By its very nature sewage treatment can never be completely odor free, but minimizing odors to prevent nuisance conditions in the area surrounding the plant is mandatory."

14-8 COMMENT: While the Engineer is stating that the most effective means of odor control available must be implemented and maintained, they go on in this section to say that what they intend is more of the same as has been previously practiced at the Village Creek WWTF. More of the same will be, as indicated in the Facility Plan, chemical scrubbing of odors. Chemical scrubbing requires a continuous expenditure for expendable chemicals that will reduce odors but not to the extent that state-of-the-art granular activated carbon adsorbtion (GAC) provides. GAC scrubbing is, in many cases, a lower cost more reliable alternative. In addition, there are other odor control technologies available and it is not clear whether or not they were investigated in the development of the facilities plan.

14-8 See Part II, Section C of the Final EIS, response to Issue 1a.

Facilities Plan
Page V-47
Section 9.4

Second paragraph indicates that the Engineer recommends that initially odor control should be by continuously adding chemicals. The Engineer further states that if this proves unsatisfactory then an investigation should begin for a number of items such as covering the primary clarifiers, covering and sealing all anaerobic digesters, and various other types of improvements.

14-8 COMMENT: The Village Creek WWTF is already equipped with chemical scrubbing units and history has shown that they have not performed adequately. The City of Arlington would like to see the Facility Plan amended to include the covering of all odor producing units within the wastewater treatment facility site and the sludge processing area and the scrubbing of all air from those units through current state-of-the-art odor adsorption control devices such as granular activated carbon scrubbers.

14-9 See Part II, Section C of the Final EIS, response to Issue 1a.

Facilities Plan
Exhibit No. V-18 Indicates that covers for 12 existing primary clarifier units are only a possibility.

14-10 COMMENT: The Facility Plan should be amended to include the covering of these existing primary clarifier units and the scrubbing of all air from the units with state-of-the-art scrubbing devices.

14-10 See Part II, Section C of the Final EIS, response to Issue 1a.

Facilities Plan
Page V-67
Section 1.3 It is stated:

> "If a program of reducing odors in the influent is successful, covers may not be needed for primary clarifiers."

14-11 COMMENT: Again, the Facility Plan should be amended to state that covers for the primary clarifiers are essential for the continued and reliable odor control for the expanded plant in the future.

14-11 See Part II, Section C of the Final EIS, response to Issue 1a.

EXISTING SLUDGE DRYING BEDS

EIS
Page 1-6

Lines 11-14 state:

"For the proposed project, use of existing sludge drying beds adjacent to Village Creek WWTF would be discontinued; however piping and other facilities associated with the drying beds would be retained so that the drying beds could be used under emergency conditions."

14-12 COMMENT: Historically these drying beds have been the source of numerous odor and insect vector problems. The City of Arlington recommends that the facility plan be amended to include the total elimination of these beds and the development of specific alternative emergency disposal measures. The facility plan was not clear on the specific nature of an emergency condition.

14-12 See Part II, Section C of the Final EIS, response to Issue 1b.

EIS
Page 5-19
Section 5.2.2

Last sentence on the page states:

"Presently, the sludge drying beds are unlined, and if kept in operation, may become a potential source of leachate from increased moisture in the sludge."

14-13 COMMENT: While it is understood that reference to this is made under the Environmental Consequences of the no-action alternative, it is clear that the existing sludge drying beds are unlined and they are a potential source of leachate when the sludge becomes wet. Aside from the odor problems which have historically plagued surrounding residential areas, as a result of the existing sludge drying beds, this potential for leachate should be corrected if the beds are to remain. This appears to be another substantive reason for elimination of the existing beds.

14-13 See Part II, Section C of the Final EIS, response to Issue 1b.

CO-DISPOSAL OF SLUDGE

EIS
Page 4-110
Section 4.7.3.2 Last paragraph, lines five, six and seven state:

> "As a backup to the proposed sludge only landfill, the City's Draft Facilities Plan proposes co-disposal in some or all of several nearby municipal refuse landfills."

It further refers the reader to figure 4-15 which includes the City of Fort Worth Southeast Landfill.

14-14 COMMENT: The City of Fort Worth Southeast Landfill is located adjacent to the banks of Village Creek, the main feeder to Lake Arlington and the sole source raw water supply for the City of Arlington. We do not want co-disposal of sludge at that site.

14-14 See Part II, Section C of the Final EIS, response to Issue 2a. The City of Fort Worth no longer plans to dispose of sewage sludge at the City's southeast landfill as a part of this facilities plan.

Facilities Plan
Page V-25
Section 4.2.1

In the second paragraph, second and third sentences it is stated:

> "Initially, sludge will be processed and landfilled. If a "sludge only" landfill is unavailable, sludge must be disposed of with municipal waste."

14-15 COMMENT: It is clear from this statement that should the site north of the Trinity River not become available as intended in this Facility Plan that the City of Fort Worth will pursue co-disposal of sludge in a municipal landfill site. The City of Arlington does not want co-disposal of wastewater treatment plant sludge at the Southeast Landfill site.

14-15 See Part II, Section C of the Final EIS, response to Issue 2a.

Facilities Plan
Page V-30
Section 4.2.2.3

First paragraph states:

> "If for any reason the floodway site cannot be used, the dewatering facilities will be located at the Village Creek Plant. Listed as the "Alternate Sludge Dewatering Area" on Exhibit V-9. Landfilling might be at any or all of the number of existing or planned municipal landfills."

14-16 COMMENT: Again, the Facility Plan is reinforcing the idea of co-disposal of sludge in the municipal landfill. Arlington must be insured that wastewater sludge will not be disposed of in the Southeast Landfill above Lake Arlington.

14-16 See Part II, Section C of the Final EIS, response to Issue 2a.

Facilities Plan
Page V-30
Section 4.2.2.3
and
Page V-31
Section 4.2.2.3 States:

> "Because the City of Fort Worth currently uses landfills for disposal of municipal refuse, and plans to continue to do so in the future, co-disposal of sludge and municipal refuse seems a likely alternative. A major concern is finding a landfill site that is environmentally, socially, politically, and economically acceptable. Because the existing landfills operated by Fort Worth are full, or are nearing capacity, a search is under way for potential sites. The City General Services Department is examining a number of likely sites. The final location of internal co-landfill operation depends on the availability and location of the land selected by the City's General Services Department."

14-17 COMMENT: The City of Fort Worth General Services Department has already applied for a permit to significantly expand the size of the Southeast Landfill located on Village Creek above Lake Arlington. This action seems to strengthen the possibility that co-disposal of sludge would occur at the City of Fort Worth Southeast Landfill.

14-17 See Part II, Section C of the Final EIS, response to Issue 2a.

In addition, the City has the following general comments and/or questions:

EIS
Page 1-12
Section 1.5 Second paragraph, second sentence, it states:

"Minor problems with nuisance vectors (e.g., flys and mosquitoes) potentially would occur due to all alternatives."

14-18 COMMENT: It is not clear in the Environmental Impact Statement nor the Facilities Plan what specific measures are being taken to address this problem in the future.

14-18 See Part II, Section C of the Final EIS, response to Issue 21.

EIS
Page 4-4
Section 4.1.2.1 Last paragraph, first sentence states:

"Although the Village Creek WWTF physically can pass up to 255 MGD by diversion of flow around the dual media filters."

14-19 COMMENT: On page 4-13, Section 4.2, second paragraph, fifth and sixth line, it is stated:

> "Since the current hydraulic capacity of the Village Creek WWTF is approximately 326 MGD,"

This is an apparent conflict, which is right 326 MGD or 255 MGD?

14-19 The hydraulic capacities presented in the Draft EIS need to be quantified further. The hydraulic capacity for primary treatment is 326 mgd, for secondary treatment is 255 mgd, and for advanced secondary treatment is 132 mgd.

EIS
Page 4-7
Section 4.1.2.1 Second, third, fourth, fifth and sixth lines indicate that in order for the Village Creek WWTF to accomplish the treatment of an average daily flow of 96 MGD and to meet effluent limitations all equipment and facilities must be in service and operating properly.

14-20 QUESTION: In view of the historical performance of the current 96MGD WWTF, does the Facility Plan address this vital need for redundancy? The

14-20 See Part II, Section C of the Final EIS, response to Issue 3.

Facility Plan should insure that the plant, when expanded, will continue to operate efficiently while critical units are out of service for either emergency repairs or routine repairs.

Facilities Plan
Page V-17

Lines 9-28 state:

"In the past centrifuges have an excessive amount of down time associated with them. This has resulted in overloading of WAS storage, which has forced the continuous use of gravity thickener 15 as a sludge holding and thickening tank. This has caused a periodic odor problem in the vicinity of this unit. At times the overloading of the centrifuges has caused WAS to be transferred to the anaerobic digesters. This results in insufficient detention time for stabilization of the sludge, creating odor problems."

"The centrifuges in general, have a history of being high maintenance items. They will continue to have high maintenance requirements throughout their useful life. Normally, unless special conditions exist, the maximum, useful life of these high speed centrifuge units, without excessive needs, is less than 10 years. Expert operation and continuous replacement of wear-prone parts on an established basis can extend the usefil life considerably. However, as the useful life of these items is approached, they may be retired from service. Alternately, the useful life can be extended so that they may continue to be used in conjunction with the proposed DAF units."

14-21 COMMENT: It is not clear in the Facility Plan whether or not funding for adequate redundancy to compensate for down time of these units is included.

14-21 See Part II, Section C of the Final EIS, response to Issue 3.

Page 4-46
Section 4.4.3.1
and
Page 4-75
Section 4.6.2

The indication on these two pages is that the City's Engineers have defined that the absence of grit removal at the beginning of the plant contributes to numerous equipment maintenance problems and is directly related to the generation of odors by an inadequate solids handling system.

14-22 COMMENT: On page 4-88, Section 4.7.1.1, first paragraph, lines five, six, seven and eight, the indication is that the City eliminated the concept of grit removal at the beginning of the plant from consideration. In view of the poor performance and the fact that the City's Engineers have isolated and defined the absence of this process as a contributor to numerous maintenance and odor problems, why has the Facility Plan preferred alternative not addressed this issue?

14-22 See Part II, Section C of the Final EIS, response to Issue 1f.

In conclusion, the City of Arlington appreciates the opportunity to comment and would re-emphasize that we are most interested in seeing that the chosen plan incorporate:

1. State-of-the-art odor control devices for and covering of all odor producing areas within the plant and sludge disposal sites.
2. Elimination of the Southeast Landfill as a potential co-disposal site.
3. Elimination of the existing sludge drying beds.

If you have any questions or require any clarification regarding our comments, please do not hesitate to let us know.

Ross B. Calhoun

Ross B. Calhoun
City Manager

cc: James W. Scanlan, Asst. Director of Fort Worth Water
 Department
 File

th Central Texas Council of Governments

P. O. Drawer COG Arlington, Texas 76005-5888

September 22, 1983

Robert Herchert
City Manager
City of Fort Worth
1000 Throckmorton Street
Fort Worth, Texas 76102

RE: Facility Plan and Draft
Environmental Impact
Statement, Village Creek
Wastewater Treatment Plant
SAI 83-08-04015

Dear Mr. Herchert:

This is to inform you that the North Central Texas Council of Governments has completed review and comment on the above referenced documents as required by Office of Management and Budget Circular A-95 (revised). Individuals and organizations listed below have been copied; however, you may also use this memo to inform appropriate agencies of our action and to document your compliance with A-95 areawide clearinghouse procedures.

As required by OMB Circular A-95, our review process includes the identification of potentially affected local governments for possible notification. The responses to our notifications are attached for your consideration.

In addition, this document was reviewed for appropriate areawide concerns. This normally includes consideration by one of NCTCOG's technical review committees as well as review by the Government Applications Review Committee and by the Executive Board. On the basis of this review process, the Executive Board at its September 22, 1983 meeting adopted the following areawide position:

15-1 The NCTCOG review process has disclosed no conflict with the review criteria of areawide comprehensive planning as outlined in OMB Circular A-95 (revised). Favorable consideration of the project is recommended, with the comment:

"Each comment received through the project notification process should be addressed in the final Environmental Impact Statement."

(continued)

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Centerpoint Two 616 Six Flags Drive Dallas/Fort Worth Metro 817/461-3300

15-1 All of the referenced comments have been addressed in this Final EIS.

We sincerely thank you for your cooperation in this matter. If we can be of further service or assistance, please feel free to call Daniel A. Johnson, Director of Regional Services, at (817) 461-3300 (metro).

Sincerely,

William J. Pitstick
Executive Director

WJP:mah

cc: Dick Whittington, Regional Administrator, Environmental Protection Agency
Clinton B. Spotts, Regional EIS Coordinator, Environmental Protection Agency
Ross B. Calhoun, City Manager, City of Arlington
M. A. Justice, Finance Coordinator, City of Kennedale
L. O. Irby, City Administrator, City of Lake Worth
Troy Daffron, Mayor, City of Everman
Pat Moffatt, City Manager, City of Haltom City
C. H. Rogers, Assistant City Manager, City of Benbrook
Michael Phemister, Director of Finance, City of Forest Hill
Jim McClung, Building Official, City of Saginaw
Denny R. Ewing, General Manager, Tarrant County Municipal Utility District No. 1
James R. McMeans, Director of Public Works, City of Hurst
Rodger N. Line, City Manager, City of North Richland Hills
Robert T. McDaniel, City Manager, Town of Pantego
Mike Groomer, City Manager, City of White Settlement
Harry Ward, Mayor, City of Westworth Village

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AUG 25 1983
North Central Texas
Council of Governments

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS

A-95 PROJECT NOTIFICATION RESPONSE FORM

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☐ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☐ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☒ This agency supports the application with the following comments/conditions:

SEE ATTACHED

☐ This agency recommends negative consideration of the application for the following specific reasons:

RECEIVED
OCT 3 1983
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Completed by:

Name: Ross B. Calhoun   Agency: City of Arlington

Title: City Manager   Date: August 24, 1983

This agency supports the application with the following comments/conditions:

15a-1 We believe the draft Environmental Impact Statement and the Facility Plan do not adequately address four major concerns. One item of major concern is odor control. The EIS only states "odor control will be by chemical addition or other effective methods". The draft Facilities Plan does not specify what chemicals will be added, where the chemicals will be added, nor the rate of application. The draft Facilities Plan also states "if chemical addition proves unsatisfactory, then additional measures (including covering of equipment and scrubbing exhaust air) will be taken to assure maximum control of odor". The final Environmental Impact Statement and Facility Plan should address specific odor control facilities and techniques.

15a-1 See Part II, Section C of the Final EIS, response to Issue 1a.

15a-2 The existing sludge drying beds have been, and continue to be, a significant source of odor problems. The EIS states "The existing sludge drying beds, located just northeast of the Village Creek Wastewater Treatment Plant, would no longer be used on a daily basis. However...the sludge drying beds still could be used under emergency conditions." The elimination of the sludge drying beds would remove a continuing source of odor problems. The term "emergency conditions" could cover a multitude of situations causing significant odor problems. We propose the elimination of these beds entirely, or the further definition of "emergency conditions" should be addressed in the final Facility Plan and Environmental Impact Statement.

15a-2 See Part II, Section C of the Final EIS, response to Issue 1b.

15a-3 The City of Fort Worth's consultants initially proposed covering all major odor-producing treatment facilities and scrubbing all exhaust air. The draft Environmental Impact Statement does not propose covering the primary clarifiers, which are a major odor source. The draft EIS states "odor control by chemical addition may be desirable". Chemical addition, in the past, has not proved satisfactory. Therefore, the final Facility Plan and Environmental Impact Statement should address covering the primary clarifiers.

15a-3 See Part II, Section C of the Final EIS, response to Issue 1a.

15a-4 The draft Facilities Plan and Environmental Impact Statement proposes co-disposal of sludge at some, or all, of several nearby municipal refuse landfills. The City of Arlington strongly objects to the use of the City of Fort Worth's southeast landfill site as a site for co-disposal. This landfill site lies adjacent to, and in the flood plain of, Village Creek which is the major tributary to Lake Arlington. Lake Arlington is the single source of water supply for the City of Arlington, and the landfilling of sludge in this landfill could jeopardize this water supply. We would recommend that the final Facility Plan and Environmental Impact Statement specifically remove the southeast landfill site from consideration of co-disposal.

15a-4 See Part II, Section C of the Final EIS, response to Issue 2a.

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS 2.21

A-95 PROJECT NOTIFICATION RESPONSE FORM

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☐ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☐ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☒ This agency supports the application with the following comments/conditions:

The proposed upgrading of the Village Creek Treatment Plant should ensure that there is a definite improvement in the environmental aspect of the area and should be approved.

☐ This agency recommends negative consideration of the application for the following specific reasons:

Completed by:

Name: M G Justin **Agency:** City of Kennedale

Title: Fin. Coord **Date:** August 1, 1983

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS 2.22

A-95 PROJECT NOTIFICATION RESPONSE FORM

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☑ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☐ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☐ This agency supports the application with the following comments/conditions:

[illegible] NECESSITY

☐ This agency recommends negative consideration of the application for the following specific reasons:

RECEIVED [illegible] 1983 EXEC. DIRECTOR

Completed by:

Name: [illegible]

Agency: [illegible] LAKE WORTH

Title: [illegible] ADMINISTRATOR

Date: August 3, 1983

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS 2.22

A-95 PROJECT NOTIFICATION RESPONSE FORM

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☑ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☐ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☐ This agency supports the application with the following comments/conditions:

[illegible] NECESSITY

☐ This agency recommends negative consideration of the application for the following specific reasons:

RECEIVED
[illegible] 1983
EXEC. DIRECTOR

Completed by:

Name: [illegible]

Agency: [illegible] WORTH

Title: [illegible] ADMINISTRATOR

Date: [illegible] 3, 1983

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS 2.23

A-95 PROJECT NOTIFICATION RESPONSE FORM

RECEIVED JUL 2 7 1983

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☒ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☐ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☐ This agency supports the application with the following comments/conditions:

RECEIVED
[illegible] - 1983
EXEC. DIRECTOR

☐ This agency recommends negative consideration of the application for the following specific reasons:

Completed by:

Name:

Agency: City of Everman

Title: Mayor

Date: August 2, 1983

cont to

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS 2.24

A-95 PROJECT NOTIFICATION RESPONSE FORM

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☒ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☐ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☐ This agency supports the application with the following comments/conditions:

☐ This agency recommends negative consideration of the application for the following specific reasons:

Completed by:

Name: Pat Moffatt
Agency: Haltom City
Title: City Mgr.
Date: 7-27-83

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS 2.25

A-95 PROJECT NOTIFICATION RESPONSE FORM

[illegible] 1983
North Central Texas
Council of Governments

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☐ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☒ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☐ This agency supports the application with the following comments/conditions:

☐ This agency recommends negative consideration of the application for the following specific reasons:

Completed by:

Name:

Title: Asst City Mgr.

Agency: City of Benbrook

Date: 7-26-83

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS

2.26

A-95 PROJECT NOTIFICATION RESPONSE FORM

1983

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☒ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☐ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☐ This agency supports the application with the following comments/conditions:

☐ This agency recommends negative consideration of the application for the following specific reasons:

Completed by:

Name: Michael [illegible]

Agency: City of Forest Hill

Title: Director of Finance

Date: 8-1-83

2.27

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS

A-95 PROJECT NOTIFICATION RESPONSE FORM

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☐ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☐ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☑ This agency supports the application with the following comments/conditions:

WE SUPPORT ALTERNATIVE 2B ONLY

☑ This agency recommends negative consideration of the application for the following specific reasons:

WE RECOMMEND NEGATIVE CONSIDERATION OF ALTERNATIVE 1, 2A AND 3 DUE TO THE DISPOSAL SITE LOCATION WHICH WOULD BE ADJACENT TO SINGLE FAMILY RESIDENTIAL IN OUR CITY.

Completed by:

Name: JIM McCLUNG
Agency: CITY OF SAGINAW
Title: BUILDING OFFICIAL
Date: 7-28-83

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29 1983
EXEC. DIRECTOR

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. 1983
EXEC. DIRECTOR

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS 2.28

A-95 PROJECT NOTIFICATION RESPONSE FORM

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☐ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☐ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☑ This agency supports the application with the following comments/conditions:
This agency supports the plan described on pages 1-5 and 1-6 of the draft. We do not feel that alternatives (1), (2B) or (3) are acceptable.

☐ This agency recommends negative consideration of the application for the following specific reasons:

Completed by:
Name: Denny R Ewing
Denny R. Ewing
Title: General Manager
Agency: Tarrant County Municipal Utility District No. 1
Date: August 3, 1983

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS 2.29

A-95 PROJECT NOTIFICATION RESPONSE FORM

RECEIVED [illegible] 1983 EXEC. DIRECTOR

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☑ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☐ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☐ This agency supports the application with the following comments/conditions:

☐ This agency recommends negative consideration of the application for the following specific reasons:

Completed by:

Name: JAMES R. MCMEANS

Title: DIRECTOR OF PW

Agency: CITY OF HURST

Date: 7-27-83

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS 2.30

A-95 PROJECT NOTIFICATION RESPONSE FORM

RECEIVED
[illegible] 1983
EXEC. DIRECTOR

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☑ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☐ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☐ This agency supports the application with the following comments/conditions:

☐ This agency recommends negative consideration of the application for the following specific reasons:

Completed by:

Name: Rodger N Line

Agency: City of North Richland Hills

Title: City Manager

Date: 7-29-83

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS 2.31

A-95 PROJECT NOTIFICATION RESPONSE FORM

JUL 28 1983

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☐ **The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.**

☒ **The above project will have no potential impact on this jurisdiction and therefore we have no comment.**

☐ **This agency supports the application with the following comments/conditions:**

☐ **This agency recommends negative consideration of the application for the following specific reasons:**

Completed by:

Name: Robt. J. McDaniel Agency: Town of Pantego

Title: City Mgr Date: 7/27/83

RECEIVED
29 1983
EXEC. DIRECTOR

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS 2.32

A-95 PROJECT NOTIFICATION RESPONSE FORM

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☐ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☐ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☒ This agency supports the application with the following comments/conditions:

Expansion of the Village Creek Wastewater Facility is vital to the entire region. Adverse environmental considerations are short term, minor and are not of significant impact

☐ This agency recommends negative consideration of the application for the following specific reasons:

Completed by:

Name: Mike Groomer

Title: City Manager

Agency: City of White Settlement

Date: 7-27-83

RECEIVED
[illegible] 1983
EXEC. DIRECTOR

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS

2.33

A-95 PROJECT NOTIFICATION RESPONSE FORM

APPLICANT: City of Fort Worth

PROJECT TITLE: Village Creek Wastewater Treatment Plant Expansion

SAI #: 83-08-04015

Please complete and return to NCTCOG by Thursday, August 4, 1983

☑ The potential impact of this project on our jurisdiction has been assessed and this agency supports the application for funding.

☒ The above project will have no potential impact on this jurisdiction and therefore we have no comment.

☐ This agency supports the application with the following comments/conditions:

☐ This agency recommends negative consideration of the application for the following specific reasons:

RECEIVED
JG 18 1983
EXEC. DIRECTOR

Completed by:

Name: [illegible]

Title: Manager

Agency: City of [illegible]

Date: Aug 2, '83

TEXAS COMMITTEE ON NATURAL RESOURCES
4144 COCHRAN CHAPEL ROAD
DALLAS, TEXAS 75209
(214) 352-8370

July 21, 1983

Dick Whittington, Regional Administrator
EPA
1201 Elm Street
Dallas, Texas 75270

Re: DEIS, Wastewater Treatment Facilities,
City of Fort Worth, TX

Texas Committee on Natural Resources objects to the DEIS as being grossly inadequate.

16-1 For example, the DEIS fails to consider adequately the harmful effects of the "preferred alternative" on the recreational potential of the West Fork of the Trinity River from Fort Worth to Dallas. This alternative would interdict and impair a Trinity River Greenbelt. Such a Greenbelt would be based upon the prevention of any further deterioration in the Trinity River floodplain. Foot trails would extend the entire length of the river from Fort Worth to the southern boundary of Dallas County.

A prototype for a Trinity River Greenway was published in 1972 by the Department of Park Administration, Texas Tech University. However, that study was constrained by reconciling itself to the West Fork Extension component of the Trinity River Project. That component has been withdrawn. A new plan should be prepared for a natural river park.

Thus the DEIS fails to consider fully the impairments which the alternatives would inflict on the true potentialities for the Trinity River.

16-2 The DEIS also fails to evaluate adequately the potentialities for land treatment of partially treated wastewater. For example, it refers to the Sheaffer and Roland report, but fails to give appropriate weight to their findings. It even fails to consider a pilot land treatment project for a part of the treated wastewater.

16-3 The DEIS reflects many biases against resource recovery of sludge.

These are mere examples of gross inadequacy.

Sincerely,

Edward C. Fritz, Chairman

ECF:edf
cc: Beth Johnson

16-1 Implementation of the preferred alternative (2B) should not adversely affect the recreation potential along the West Fork of the Trinity River. The City of Fort Worth would construct a sludge dewatering facility and sludge-only landfill on approximately 150 acres in the floodplain of the Trinity River north of the existing Village Creek wastewater treatment plant. The City also would construct a flood relief channel to help ensure that no increases in flood levels occur upstream. This would remove approximately 150 acres from future development for recreation or any other activity for the life of the project. As a part of the project, however, the City of Fort Worth has developed a fish and wildlife mitigation plan. This plan includes the development of a fish and wildlife preserve on an area south of the flood relief channel and north of the Trinity River. This action by the City of Fort Worth would preserve a greenbelt along this portion of the Trinity River as well as provide important habitat for wildlife resources in a rapidly developing area. Although the proposed wildlife area will be developed principally for benefits to wildlife, some recreation benefits would be realized because of greenbelt preservation and potential for observation of wildlife by the public. See Part II of the final EIS, response to Issue 3a.

16-2 See Part II, Section C of the Final EIS, response to Issue 5b.

16-3 See Part II, Section C of the Final EIS, response to Issue 2d.

First City National Bank of Fort Worth
201 Main Street, P.O. Box 2949
Fort Worth, Texas 76113
(817) 870-1777

Martin C. Bowen
President and Chief Executive Officer

FIRSTCITY

August 10, 1983

Mr. Clinton B. Spotts
Regional EIS Coordinator
U. S. Environmental Protection Agency
Region 6
1201 Elm Street
Dallas, Texas 75270

Dear Mr. Spotts:

I understand that a public hearing on wastewater treatment capacity expansion will be held on Thursday, August 18, in Fort Worth's City Council Chambers. As a citizen keenly interested in the future growth and prosperity of Fort Worth and Tarrant County, I strongly support a project to substantially increase the capacity of the Village Creek Wastewater Treatment Plant.

Several hundred alternatives for wastewater management have been evaluated in recent years, and the adoption and implementation of the City of Fort Worth's proposed project (Alternative 2B) will provide adequate sewage treatment capacity in an environmentally safe manner. I strongly urge you to support Alternative 2B.

17-1 Comment noted.

Thank you very much for your assistance in this matter, and please do not hesitate to contact me if I can be of service to you.

Yours sincerely,

MCB:cmt

CC: Mr. Joseph M. Grant, Chairman
Fort Worth Chamber of Commerce

Member First City Bancorporation of Texas, Inc.

JAMES N. PATTERSON, JR.
CHAIRMAN OF THE BOARD

THOS. S. BYRNE, Inc.
464 BAILEY AVENUE
FORT WORTH, TEXAS 76107
817 335-3394

August 10, 1983

RECEIVED
AUG 11 1983
6 ES

Mr. Clinton B. Spotts
Regional EIS Coordinator
U. S. Environmental Protection Agency
Region 6
1201 Elm Street
Dallas, Texas 75270

Dear Mr. Spotts:

I understand there will be a public hearing on wastewater treatment capacity expansion for the Village Creek Wastewater Treatment Plant on August 18th. Since I won't be able to be there I wanted to tell you that it is certainly very important to Fort Worth and the entire area to have a good sewage system that is able to take care of the needs of the area including normal growth and expansion.

18-1 Comment noted.

Concerning Alternative 2B, from what I understand this is a very good solution to the problem from both an environmental and cost standpoint. I wanted to let you know that I strongly support it.

Very truly yours,

James N. Patterson, Jr.

JNP:ss

THOS. S. BYRNE, Inc.
GENERAL CONTRACTORS
FORT WORTH, TEXAS
464 BAILEY AVENUE
FORT WORTH, TEXAS 76107
817 335-3394

August 15, 1983

Mr. Clinton B. Spotts
Regional EIS Coordinator
U. S. Enviromental Protection Agency
Region 6
1201 Elm Street
Dallas, Texas 75270

Dear Mr. Spotts:

I will be unable to attend the public hearing on wastewater treatment capacity expansion for the Village Creek Wastewater Treatment Plant on August 18th; however I do think that the proposed expansion is very worthwhile and necessary for our community.

19-1 Comment noted.

Likewise I feel that Alternative 2B is a good solution to the plant expansion from all aspects and strongly urge you to support it.

Very truly yours,

A. T. Seymour III

A. T. Seymour, III
President

ATS:lp

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AUG 16 1983
6 ES

100 IN OUR 2ND HALF CENTURY

[illegible] Drive
Dallas, Texas [illegible]
Phone [illegible]

STAR
RENTAL SERVICES

400 So. Jennings Ave.
Fort Worth, Texas 76104
Phone 817/332-8131

August 16, 1983

Mr. Clinton B. Spotts
Regional EIS Coordinator
U.S. Environmental Protection Agency
Region 6
1201 Elm Street
Dallas, Texas 75270

Dear Sir:

We wish to formally voice our support for the expansion of the Village Creek Waste Water Treatment Plant.

We understand that there is a proposal to increase the capacity of that plant by approximately 40% and that it is to be accomplished in three stages. We totally endorse such a plan.

Looking toward the future, we see nothing but an increasing rate of growth for this Fort Worth area.

Our company has been doing business in Fort Worth for twenty-six years. Our rate of growth in the past five years has equaled and surpassed all of the growth that we had in the previous twenty years. Since we service many diversified industries in the Fort Worth Metroplex, we think that our type of business is a very good barometer of the growth that is occurring by industry. We see no reason why that growth will not continue unabated, certainly for the next ten to twenty years.

20-1 Comment noted.

Therefore, we endorse the adoption and implementation of the City of Fort Worth's proposed project (alternative 2B).

Very truly yours,

Ronald L Cohen

Ronald L. Cohen (President)

RLC/cmk

RECEIVED
AUG 17 1983
6 ES

cc: Joseph M. Grant, Fort Worth Chamber of Commerce
Norman Robbins, Fort Worth Chamber of Commerce
Richard Sawey, Director, Fort Worth Water Department
Jim Scanlan, Asst. Director/Water Pollution Control
Frank Gaudet, Industrial Waste Supervisor
David Ivory, Asst. City Manager, City of Fort Worth

"Over 50 Years Textile Rental Services to Industry and Commerce"

League of Women Voters of Texas
1212 Guadalupe Suite 109 • Austin, Texas 78701 • Tel. 512/472-1100

STATEMENT AT PUBLIC HEARING ON WASTEWATER TREATMENT FACILITIES, CITY OF FORT WORTH - AUGUST 18, 1983

I am Georgia Kidwell, presenting comments of the League of Women Voters of Texas on the Draft Environmental Impact Statement for Fort Worth's wastewater treatment facilities.

The League has long supported efforts to improve water quality in accordance with goals of the federal Clean Water Act. League members in Tarrant and Dallas Counties have a particular interest in the quality of wastewater from the Village Creek plant, which constitutes a major part of the usual flow of the West Fork and the Trinity River in the mid-cities and Dallas. With increasing urbanization of land near the river and increasing recreational use of the river corridor, the quality of Fort Worth's wastewater has taken on added importance.

21-1 Improvements in Effluent Quality: The City of Fort Worth is to be commended for the significant recent improvements in the operation of the Village Creek plant and the quality of its effluent. Additional treatment capacity is urgently needed if these gains are to be maintained and if further improvements are to be achieved.

21-2 Sludge Disposal: Improved treatment and greater flows will, of course, result in larger quantities of sludge. The value of the sludge nutrients as soil additives is estimated to be more than $1 million per year (p. 4-128). Yet the primary method proposed for handling future sludge is burial in a sludge-only landfill.

Landfilling the sludge will not only waste valuable nutrients; it will also be expensive. Capital costs for land, flood conveyance, landfill site construction, and pumping facilities total $6 million, with annual operating costs of $180,000.

21-1 Comment noted.

21-2 See Part II, Section C of the Final EIS, response to Issue 2d.

21-3 In addition, there will be negative impacts to lands where the fill site and flood conveyance channel are located, including losses of wetlands and bottomland hardwoods (p. 5-104).

21-4 Use of the sludge to benefit lands is recognized only as a "long-term goal" (p 4-112). What would be the costs and impacts of sludge-disinfection to allow continued use of the sludge as a soil conditioner for public lands?

21-5 Industrial Wastewater: It is estimated that 30 to 40 percent of the BOD loading of sewage treated at the Village Creek plant is generated by industries (p 4-24). What benefits in effluent quality could be achieved by more stringent pretreatment requirements? What would be costs to the industries?

21-6 Construction Schedule: The proposed schedule for wastewater treatment plant improvements, and for diversions to the TRA plant, barely keeps up with projected increases in volumes of wastewater (p. 4-137). It is important that this schedule be strictly followed or, if possible, accelerated, to assure continued improvements in the quality of water in the West Fork and the Trinity River.

We appreciate the opportunity to review the Draft Environmental Impact Statement on this project and to present our views to you at this meeting.

21-3 See Part II, Section C of the Final EIS, response to Issue 3a.

21-4 See Part II, Section C of the Final EIS, response to Issue 2d.

21-5 The City of Fort Worth has an industrial waste ordinance in effect. Under this ordinance the City has developed and is implementing an industrial pretreatment and monitoring program. The ordinance prohibits the discharge of certain waste into public sewers and places limits on the concentration of other discharges. The City currently monitors over 100 dischargers and has the authority to assess fines where pollutant concentration in wastewater violates established limits. The City's pretreatment program allows industrial waste which is biodegradable to be discharged to the system. However, such waste must be treatable by conventional means and must not be discharged in slug loads.

The current Village Creek WWTF is (and the proposed expansion would be) designed to handle a certain amount of industrial loading. Although a high percentage of the current wasteload is industrial, the majority of this is high strength waste from a brewery. This waste can be treated by conventional methods which the Village Creek WWTF is designed to handle. The pretreatment program is set up so that the discharger can either "pretreat" the waste stream to an acceptable level or pay the City of Fort Worth to provide the treatment. Therefore, the industries which discharge to the system are responsible for treatment costs regardless of who provides the treatment.

The City of Fort Worth has hired a consultant to conduct a comprehensive wastewater treatment rate study. The study would be the basis for a rate structure which would ensure equitable distribution of cost (both for construction of capacity and operation and maintenance) among the various customer classes.

21-6 The City of Fort Worth plans to adhere to the proposed schedule as closely as possible. Flows from the service area do not appear to be increasing as rapidly as projected. If this continues to be the case, the City of Fort Worth may wish to delay the construction of facilities until they are necessary.

TRINITY IMPROVEMENT ASSOCIATION

2117 W. Airport Freeway, Suite 31, Plaza Garden
P.O. Box 5509, Irving, TX 75062-0509
Metro 214-256-2333

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At-Large
Dale Miller

August 18, 1983

RECEIVED

Mr. Dick Whittington
Administrator, Region 6
Environmental Protection Agency
1201 Elm Street
Dallas, TX 75270

re: Draft EIS, Wastewater Treatment Facilities, City of Fort Worth, Texas

Dear Mr. Whittington:

Although the project proposal is made by the City of Fort Worth, the cities of Arlington, Haltom City, North Richland Hills and Hurst also contribute to the waste load treated at the Village Creek plant. Thus, they share in the responsibility to achieve a satisfactory solution.

Collectively, the Dallas/Fort Worth metroplex constitutes one of the largest concentrations of population in the United States. It is destined to grow even larger, both population wise and geographically. Likewise, the waste disposal problem will require continuing efforts. Adoption of a no-action alternative to the problem of overload at Village Creek sewage treatment plant would be a death sentence to the western part of the metroplex and does not merit serious consideration.

Of the other four alternatives addressed in the EIS, three call for transferring a major part of the problem to the vicinity of Saginaw, Texas. This would involve transportation of substantial amounts of sewage or sludge as well as conversion of some 22,000 to 60,000 acres of crop land for use as a sewage disposal facility. It is likely that strong opposition would be raised to these alternatives by Saginaw residents to their neighborhood being used to solve what is perceived as a big city problem.

The remaining alternate, designated 2B, offers the most practicable solution. While achieving the needed plant expansion to 137 million gallons per day capacity, this plan also has the advantage of buying time through interim use of idle treatment capacity at the Trinity River Authority's Central plant in Grand Prairie.

22-1 Comments noted.

Sponsoring a coordinated program of improvement for the entire Trinity River Basin including flood control, soil water forest conservation, navigation, reclamation, alleviation of stream pollution, conservation of wildlife, and storage of water for municipal, agricultural, industrial and recreational uses

The City of Fort Worth is to be commended for the excellent performance that has been achieved in pollutant removal at the Village Creek plant since the latter part of 1982. The quality of effluent discharged has been superior to that of the receiving stream in many respects. Such performance benefits the entire metroplex and particularly the downstream residents. The time has arrived when plant capacity must be increased.

It is respectfully recommended that the EIS be approved so that expansion and upgrading of the Village Creek plant can proceed in a timely manner.

Sincerely,

Russell H. Perry

Russell H. Perry
President

cc: Mayor Bob Bolen, City of Fort Worth
Richard Sawey, City of Fort Worth
Charles Nemir, Texas Department of Water Resources

August 22, 1983

Stephen J. Geronimo
1814 Park Hill Drive
Arlington, Texas 76013

TO: CLIFFORD E. STOTTS, REGIONAL EIA COORDINATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY
1201 ELM STREET
DALLAS, TEXAS, 75270
SUBJECT: PROPOSED EXPANSION OF THE
VILLAGE CREEK SEWAGE PLANT

DEAR SIR

I HAVE LIVED IN THE NORTHWEST SECTION OF ARLINGTON, TEXAS SINCE 1971

DURING THE FIRST FEW YEARS OF RESIDENCE I WAS RARELY AWARE OF ANY FECAL STENCH FROM THE VILLAGE CREEK SEWAGE TREATMENT PLANT.

FROM THE MIDDLE 1970'S TO THE PRESENT HOWEVER, THE STENCH FROM THE VILLAGE CREEK SEWAGE PLANT, HAS SUBJECTED MY FAMILY AND MYSELF TO AN UNDENIABLE ASSAULT ON MY GOD GIVEN RIGHTS TO BREATH CLEAN AIR. DURING PERIODS OF MILD WEATHER, DUE TO THE STENCH, I CANNOT OPEN THE WINDOWS OF MY HOME THEREBY FORCING ME TO WASTE ENERGY BY OTHERWISE UNNEEDED USE OF MY

HOME AIR CONDITIONING SYSTEM
AS I SEE IT I AM "FIGHTING CITY HALL"
AND COMPLACENT DECISION MAKING
OFFICIALS WHO ARE NOT SUBJECT
TO THE OVERPOWERING STENCH COMING
FROM THE VILLAGE CREEK SEWAGE PLANT.

23-1 I AM COMPLETELY OPPOSED THE USE OF
TAXPAYERS FUNDS TO EXPAND THE
VILLAGE CREEK SEWAGE PLANT BECAUSE:
A - THE STENCH IS DEGRADING TO
MY FAMILY'S AND MYSELF'S QUALITY OF LIFE
(ESPECIALLY WHEN WE HAVE OUT OF TOWN VISITORS)
B - THE MOSQUITO PROBLEM CAUSED BY THE SEWAGE
PLANT
C - THE VALUE OF MY HOME IS ADVERSELY
AFFECTED THRU NO FAULT OF MINE

23-1 Comment noted.

FOR YOUR CONSIDERATION I offer the
FOLLOWING ALTERNATIVES:
RATHER THAN USE TAXPAYERS MONEY
TO FINANCE THE VILLAGE CREEK SEWAGE PLANT
EXPANSION; I FEEL THAT THE FUNDS
COULD BE BETTER USED AS FOLLOWS:

2

23-2 A. DIVERT ANY EXCESS SEWAGE FLOW FROM THE VILLAGE CREEK SEWAGE PLANT TO THE TRINITY RIVER AUTHORITY'S CENTRAL WASTE WATER TREATMENT FACILITY

23-3 B REACTIVATE THE RIVERSIDE WASTEWATER TREATMENT PLANT IN FORT WORTH TO ACCOMODATE INCREASED SEWAGE FLOW.

23-4 C COMPLETELY SHUT DOWN AND REMOVE THE VILLAGE CREEK SEWAGE PLANT AND CONSTRUCTING A NEW PLANT IN AN ENVIRONMENTALLY ACCEPTABLE AREA USING THE LATEST TECHNIQUES IN ODOR CONTROL, SLUDGE DISPOSAL ETC. AND ESTABLISH A SORELY NEEDED PARK OR GREENBELT ON THE FLOOD PLAIN SITE NOW OCCUPIED BY THE VILLAGE CREEK SEWAGE PLANT

THANK YOU FOR ALLOWING ME TO EXPRESS MY THOUGHTS TO YOU

Yours truly

Stephen J.

23-2 The City of Fort Worth considered diverting wastewater flow to the Trinity River Authority's (TRA) Central Plant on both a permanent and temporary diversion basis (see Chapter 4, specifically Sections 4.5, 4.6, and 4.7 of the Draft EIS). The TRA advised the City of Fort Worth that a permanent diversion at the present time is not possible due to contractual limitations. However, the concept will be given further consideration as a factor in expansion plans for TRA Central. Such a diversion would not be consistent with the current areawide plan.

The TRA advised the City of Fort Worth that they would be willing to discuss a possible temporary diversion of wastewater to the Central Plant to handle increased flows until the Village Creek plant could be expanded. The City of Fort Worth negotiated with the TRA on this possibility but the two parties have yet to reach an agreement. All of the final alternatives include a temporary diversion as a component. Since flows are increasing much more slowly than originally projected, the City of Fort Worth has deleted the temporary diversion from its Facilities Plan.

23-3 In the process of evaluating and screening wastewater treatment alternatives, the City of Fort Worth considered reactivation of the Riverside Wastewater Treatement Plant as well as other use of the Riverside plant site (see Sections 4.4 and 4.5 of the Drft EIS). The City of Fort Worth eliminated alternatives involving use of the Riverside plant because of major problems and costs associated with implementation. First, the use of the Riverside site would result in an additional potential for odor generation. The public would object strongly to reopening the plant after it had been abandoned. Also, most of the old treatment units have deteriorated or have been removed from the plant site. A complete new facility would likely be required. Finally, additional personnel and equipment would be required for administration, operation and maintenance of the facility in addition to the Village Creek facility.

23-4 The City of Fort Worth evaluated abandoning the existing Village Creek wastewater treatment facility and transporting the flow to another area for treatment. In the principal alternative evaluated, both liquid waste and sludge would be disposed of by land treatment in an area in southwest Tarrant and northern Johnson counties. This alternative is addressed in Sections 4.5 and 4.6 of the Draft EIS and in Section U of the report "Fifteen Alternatives for Intermediate Screening" prepared by Camp, Dresser and McKee, Inc. for the City of Fort Worth (the latter report is available for review at the information depositories listed on page 6-5 of the Draft EIS). This land treatment alternative was eliminated from consideration because of excessive costs, potential water rights questions, the amount of land required (over 28,000 acres) for land application, and problems with implementing such a large operation.

The City of Fort Worth recently completed a comprehensive odor control study as a part of its planning efforts. This study included the evaluation of existing and potential odor problems and the development of measures to reduce odors cost-effectively over both the short- and long-term. The odor control plan would be incorporated into the design drawings and specifications for the expansion of the Village Creek wastewater treatment facility. The odor control study and plan are addressed in Part II, Section C of the Final EIS, response to Issue 1a.

As a part of the wastewater treatment system expansion, the City of Fort Worth proposes to establish a wildlife management area on the north side of the Trinity River adjacent to the proposed sludge disposal area and flood relief channel. This area would provide a portion of a greenbelt which would be protected from development for the life of the project. See also Part II, Section C of the Final EIS, response to Issue 3a.

P.O. Box 52
Cleburne, Texas 76031

August 24,1983

RECEIVED
AUG 29 1983
6 ES

Mr. Clinton P. Spotts
Regional EIS Coordinator, EPA
Region 6,
1201 Elm Street
Dallas, Texas 75270

Gentlemen:

I am writing concerning the upgrading and expansion of wastewater treatment facilities for the City of Fort Worth. My main concern is with alternative 3, which would allow farmers to use wastewater for irrigation purposes at the rate of 1.25 inches per week,covering an area of 8,400 acres.

24-1 I must first state great concern and objection to alternative 3. I am a landowner in the proposed site area. At the beginning of the wastewater issue, we were interested in such a situation. However, we were not informed of the negative aspects of such a plan. Now many landowners are very strongly opposed to such an idea.

24-2 In reviewing your environmental report I have noticed several points of contention. One such point being that ten to fourteen tons of sludge would be generated by the aerated lagoons. Then, such would be periodically applied to the irrigated land in liquid form. We as landowners, were advised there would be no sludge and no need for lagoons. When we investigated further we found out different.

24-3 Under 4-120 the City of Fort Worth would neither purchase or lease our lands for their project, but the city would require the landowners to distribute wastewater "when required by the city and not when crop practices dictate." As a landowner, may I point out that on 5-128 your study states: "Irrigation of crops with wastewater effulent at site 3 should enhance agricultural use of the land site." Being in agriculture, I would have to question this statement in relation to 4-120 as stated above. If we are forced to apply effulent when crop practices don't dictate, such application could have a very negative effect on our crops, especially during a wet year. The landowners would have to have control of any and all application of effulent in order to secure maximum growth and proper harvesting of said crop.

24-4 I might also point our that the landowner would be required to repair and pay operating costs of such equipment. The operating costs alone, not to mention upkeep, along with the normal costs of putting in our crops would not be regained by a higher yeild of crops in our area in my opinion.

24-5 As your reports have mentioned, our average rainfall for our area is 30 to more than 50 inches a year. With the required 1.25 inches a week we would add on 65 inches per year. I realize that statistically many beleive our area can take such, but as one who is involved with the land, I beleive that we could not

24-1 Comment noted. At present, the City of Fort Worth does not propose to implement a land treatment alternative.

24-2 Excess sludge would build up in large aerated lagoons proposed in the land application alternative. The exact amount of sludge is difficult to project since many solids are converted to algae that would be removed from the pond effluent by a rock filter. For planning purposes, the City proposed removal of 10 to 14 tons of sludge per day from the lagoon to be disposed of on irrigated farmland by subsurface injection. It would probably take a few years to develop a compact layer of sludge on the bottom of the lagoons so that sludge could be continuously wasted.

24-3 Comment noted.

24-4 Comment noted.

24-5 Comment noted. The City of Fort Worth could not commit to responsibility for crop or land damages if a land treatment alternative was implemented.

stand an average of 95 inches a year. When we have a wet year of 50 inches, we lose a large portion of our crops. If 65 more inches were applied we could possibly lose our entire crop. The City of Fort Worth would have to be responsible for any crop or land damages suffered because of the effluent.

24-6 One might also investigate statements made on 5-93 in which it was said that the nearest residence is " 1/8 to 1/4 miles from the treatment site." This residence is also owned by one of the landowners who own the land where the areated lagoon and resivoir is to be located. May I point our that in relation to where the areated lagoons are to be placed there is a residence approximately 1/10th of a mile East of the proposed site. This house is not on lands to be purchased for areated lagoons or the resivoir. Could we not assume that this landowner would be drastically affected by any adverse conditions. I dare say so. I am surprised the mention of this house was left our of the study.

24-7 We have also noticed that the amount of water usually fed into the Nolan River might decrease in order that Fort Worth, doesn't lose any of its wastewater return. Any reduction in water flowing through the Nolan River would affect Lake Pat Cleburne, i.e. the City of Cleburne and their main source of water.

24-8 In checking into the effects of such a system to be installed in Site 3, several landowners have checked with the Texas Department of Health. In doing so, one landowner was informed that there is a very strong indication that the milk from dairy cattle grazing on lands treated by wastewater would not be allowed to be sold for human consumption. In site # 3 the major source os income is from the dairy business. Therefore, several dairies would be closed because of this proposal. There has also been some question regarding beef cattle that graze on lands treated.

24-9 Please notice that on 4-129 it is shown that some 600 acres of land would be needed and purchased for the areated lagoons by Fort Worth, the land would then be exempt from County and School Taxes. The Godley I.S.D. is not a wealthy school district and the loss of any taxable property would be felt.

24-10 Economically we beleive that the proposal known as site 3 would eventually cause us more harm in site 3 than benefit. Besides losing tases, several dairy people might be put our of business as stated herein.I would also have to point out out that contrary to the report that land values might go up with the implementation of Alternative 3, several land appraisors and other officials have indicated that they beleive such a plan would have a drastic downward effect on land prices in our area. Also that developemen potential would drop. Therefore, we do not beleive our area would benefit at all from implementation of Alternative 3.

24-11 Finally, in order for Alternative 3 to become a reality, there is a need for approximately 8,647 acres of land to distribute wastewater effluent. I dare say that Fort Worth could possible get enough landowner to participate to the tune of 600 to 1,00 acres, but not the acreage required. Any attempt to force

24-6 The statement on page 5-93 has been changed to "approximately 1/10 mile..." It should be noted that the distances from the aerated lagoon to the nearest residence were approximate ranges. The exact location of the aerated lagoon in the land treatment alternative had not been determined in the facilities planning process. If the land treatment alternative had been pursued further by the City of Fort Worth, a final site for the lagoon would have been selected based on several factors such as soil conditions, availability, and necessary buffer areas. As stated in the Draft EIS, any residence close to an aerated lagoon would be affected by odor. An adequate buffer zone would likely be needed around any aerated lagoon.

24-7 As a part of Alternative 3, the City of Fort Worth would capture some runoff which would normally flow into Lake Cleburne. However, the City would discharge an amount of water to Lake Cleburne equal to the net amount of runoff which was diverted.

24-8 No current requirement of the Texas Department of Health or the Texas Department of Water Resources would specifically prohibit allowing milk from dairy cattle or meat from beef cattle grazing on lands treated by municipal wastewater to be sold for human consumption. EPA's "Process Design Manual for Land Treatment of Municipal Wastewater" recommends that "to protect livestock, grazing should not be allowed on pasture irrigated with disinfected pond or secondary effluent for 3 to 4 days after application." This restriction should not preclude a dairy or beef cattle operation provided proper management is practiced.

24-9 Comment noted. The lost property would have an adverse effect on the taxing authorities.

24-10 Comment noted.

24-11 Comment noted.

such treatment upon landowners would be met with strong resistance. The City of Fort Worth would need the landowners cooperation and they do not have it.

Gentlemen, I appreciate the opportunity to express my views on this issue. I hope you will consider our area as unacceptable for such a project. We did not build our homes next to a sewer treatment plant and we certainly do not wish to have any type of sewer treatment plant built next to our established homes or in our County.

Sincerely,

William O. Daniel

William O. Daniel

wod/fv

RICHARD P. SCALING
ROUTE 5, BOX 244
FORT WORTH, TEXAS 76126

August 26, 1983

Mr. Clinton B. Spotts:
Regional EIS Coordinator

Re. Draft EIS City of Fort Worth WTP

I wish to strongly reccomend that the plan adopted by the City of Fort Worth, to enlarge and update the present Village Creek Plant be approved as the best solution to the present problem.

25-1 I am a member of the CAC and a landowner in the Mustang Creek area. I want to go on record now that there are many statements in the draft EIS concerning the Mustang Creek area that are untrue.

25-2 City of Fort Worth municipal departments can best handle a plan that they understand and are familiar with. Alternative 3 (Mustang Creek Site) was forced on the City of Fort Worth by the City of Arlington who used a Denver Firm (Sheaffer & Roland) to write an ambiguous report on landtreatment that could never be adapted to the Mustang Creek area. Letters of voluntary commitment were Obtained by Sheaffer & Roland from landowners by giving the landowners false or misleading information.

25-3 Support has been withdrawn or never was given for 90 % of the land shown in Figure 4-19 on page 4-122 of the draft EIS. The source for all information must be reliable or the information is no good.

25-4 It is my strong belief that the EPA will be in agreement with the City of Fort Worth that the course of action that they want to take is far better and much cheaper than any of the alternatives.

Sincerely,
R. P. Scaling
R. P. Scaling

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AUG 29 1983
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AUG 29 1983
6 ES

25-1 Comment noted.

25-2 Comment noted.

25-3 Comment noted.

25-4 Comment noted.

Wm. Roy Anderson (1900 - 1984)
Wm. R. Anderson, Jr.
David B. Anderson

ANDERSON & ANDERSON
ATTORNEYS AT LAW
206 NORTH MAIN
P.O. BOX 486
Cleburne, Texas 76031-0486

Telephone 817 645-9191

August 26, 1983

RECEIVED
AUG 29 1983
6 ES

Hon. Clinton B. Spotts
Regional EIS Coordinator
United States Environmental
Protection Agency
Region VI
1201 Elm Street
Dallas, Texas 75270

Re: Environmental Impact Statement-Waste Water Treatment Facilities-City of Fort Worth, Tarrant County, Texas

Dear Sir:

We represent J. R. Clark and R. E. Roberts who are the owners of a tract of land in the Mustang Creek area involved in Sight Three or Alternative Three of the above. Based upon information available, the storage reservoir and irrigation water pump station, if constructed would be located on their property.

While there are many aspects of the Statement that might be discussed, on behalf of our clients, I would like to point out and stress the matters set forth herein.

26-1 Our clients initially owned approximately 1,628 acres in this area. Of this total, approximately 574 acres has heretofore been subdivided, developed into homesites and sold. An additional 328 acres has been sold and conveyed to Highcrest Estates, Inc. for subdivision and development into homesites. These two (2) tracts lie immediately North of the proposed storage reservoir. It is our feeling that the selection of Alternative Three would have a definite adverse economic impact on not only our clients, believing that it would prohibit the development of the remainder of their land; that it would restrict the development of the 328 acres sold to Highcrest Estates, Inc.; and a definite economic impact on Johnson County and the Godley Independent School District because of the reduction of property values, the halting and/or restricting of development, and the possible removal of a portion of the property from the tax rolls. Additionally, if a portion of the property is not developed, or if there is a limitation on the development, the Retail Merchants in Godley, Cleburne, Joshua, Crowley, Burleson and other nearby areas are affected, because the people purchasing tracts for homesites and moving to this area would be trading with them.

26-1 Comment noted.

26-2 We note on page 4-120 of the Impact Statement that approximately 8,460 acres of land would be involved and that the city would neither purchase or lease the land but would sign Contracts with local landowners. It is our understanding that the greater majority of the local landowners, particularly those in the proposed immediate area are opposed to the proposal and would not sign Contracts for their land to be used in the irrigation process. It is further our understanding that some of these may have at one time have indicated their willingness to enter such a Contract; but, have subsequently withdrawn their effective consent. Additionally, it is my understanding that the Commissioner's Court of Johnson County has withdrawn their support of this proposed location.

26-2 Comment noted.

26-3 We note on page 5-69 of the Environmental Impact Statement that there would be an increased flow in Mustang Creek and a decreased flow in Nolan River. We believe that this would possibly have an affect on the water supply system for the City of Cleburne because Lake Pat Cleburne, the source of the city water supply, is located downstream on the Nolan River and relies on the water which drains into the Nolan River and in turn flows into the lake for its water supply.

26-3 See response to comment 24-7.

We will appreciate your consideration of these matters, and we firmly believe and hope that you will consider that Sight Three or Alternative Three is impractical and would have far-reaching environmental consequences on this area; and that Sight Three or Alternative Three should be totally removed from consideration.

Yours very truly,

ANDERSON & ANDERSON

Wm. R. Anderson, Jr.

WRA/pe

cc: Hon. Tommy Altaras
County Judge
Johnson County
Courthouse
Cleburne, Texas 76031

cc: Hon. Lloyd Moss
City Manager
City of Cleburne
302 West Henderson
Cleburne, Texas 76031

2305 Chimney Hill Ct.
Arlington, Texas 76012
August 29, 1983

RECEIVED
AUG 29 1983
6 FS

Mr. Clinton B. Spotts
Regional EIS Coordinator
U.S. Environmental Protection Agency, Region 6
1201 Elm Street
Dallas, Texas 75270

Re: Draft Environmental
Impact Statement
Wastewater Treatment
Facilities, City of
Ft. Worth, Texas

Dear Mr. Spotts:

Being unable to attend the public meeting on August 18, 1983, I respectfully submit for your consideration, my comments on the Draft E.I.S. for the Village Creek Wastewater Treatment Facility. Having been closely associated with the progress of this project since 1979 and a member of the C.A.C. since 1980, I feel compelled to bring to your attention areas in the Draft E.I.S. which, in my judgement, appear questionable.

In the August 1979 Scoping Meeting, the major emphasis was on odor control and water quality which are identified as key issues on Page 3-14 and 3-15 of Draft E.I.S. I believe the Draft E.I.S. does not fully address these key issues in the following areas:

27-1 1. Page 3-15: In discussion of key issues, statement is made for need to enforce current regulations for wastewater discharge before expansion plans are implemented. What is governing authorities' position on this with respect to the present facility and funding for expansion?

27-2 2. Page 4-11: Last paragraph says Plant met its effluent limit four times from March 1979 to May 1982. What will be environmental effect if expansion facility has this problem?

27-3 3. Page 4-24: If 30-40% of 96 MGD facility's BOD loading is industrial, what will percentage of expanded facility be? Also, what portion of expanded facility will not be Grant applicable because of this and what effect will this have on user rates?

27-4 4. Page 4-76: In paragraph discussing expansion, one new areation basin, five new final clarifiers and eight additional dual-media filters are required to enable present facility to meet discharge permit. Will this be Grant eligible?

27-5 5. Page 4-88: Why has city eliminated grit removal before primary clarification? On page 4-46 the city's engineers state this has caused numerous equipment maintenance problems and is directly related to the generation of odors by an inadequate solids handling system.

27-1 EPA will continue to monitor the City of Fort Worth's NPDES permit compliance status. The City is presently meeting the requirements of their current NPDES permit. EPA encourages the City of Fort Worth to continue to operate its wastewater treatment facilities efficiently, to make still needed improvements as appropriate, and to proceed with upgrading and expansion of their facilities consistent with the current facilities planning effort. Funding will be based on final eligibility determinations subject to considerations such as availability of funds and priority designations and completion of the environmental review. See Part IV of this Final EIS for EPA's preferred alternative regarding funding.

27-2 The City of Fort Worth has met the requirements of the current NPDES permit for the Village Creek wastewater treatment facility since March 1983. The City believes they will be able to meet the limitations of the new permit except during periods of extremely high flows during wet weather.

If an expanded Village Creek plant could not meet its NPDES permit limits, there would be some degree of adverse impact on the Trinity River. The extent of the impact would be related to the amounts and types of pollutants discharged and the river flow at the time of the discharge. For instance, if problems with the discharge occur during high flows the impact on the river would most likely be less than if the problem occurred during low flow conditions. This is due to the greater assimilative capacity of the river when the flows are high.

No absolute guarantee can be provided that a plant will meet the limits it is designed to meet. However, the City of Fort Worth will design any expansion of their system to meet appropriate design criteria for operating within NPDES permit limits. All plans and specifications must be reviewed and approved by the Texas Department of Water Resources and construction would be inspected by TDWR and the U.S. Army Corps of Engineers, as well as by the City of Fort Worth's resident inspector.

27-3 The City of Fort Worth anticipates that 15% of the organic loading of an expanded facility would be industrial, 5% of which would be an allowance for unannounced industrial growth.

Grant assistance can be provided for treatment works capacity to transport or treat compatible industrial wastewater if the treatment works would be eligible for grant assistance in the absence of the industrial capacity. Costs for construction (that which is not elibible for grant participation) and operation and maintenance of capacity constructed to handle wastewater from industry would be recovered from the appropriate user. Industrial users of the system are assessed charges for treatment based on the strength of the sewage each contributes to the system.

See also response to Comment 21-5.

27-4 The design criteria for the previous Village Creek WWTF expansion are somewhat different than the design criteria being utilized for the expansion proposed now by the City of Fort Worth. The Texas Department of Water Resources staff is reviewing the effect of this change on the original design and will make a determination concerning eligibility of the units in question. Although a final determination cannot be made until completion of the environmental review process, it is expected that most, if not all, additional units to handle peak flows at the present plant capacity may be eligible.

27-5 See Part II, Section C of the Final EIS, response to Issue 1f.

Mr. Clinton B. Spotts
August 29, 1983
Page Two

27-6 6. Page 4-88: Why has city eliminated covers and scrubbers as the primary means of odor control? The change from covers to chemicals does not appear to be reflected in the cost estimates. If both systems cost the same, would covers be more positive as an odor control means?

27-7 7. Page 4-90: What would constitute an emergency condition which would allow use of the existing drying beds? If the beds are used at all, should they also be lined to prevent leachate, as indicated on page 5-39?

27-8 8. Page 4-131: The statement that the city selected Alternative 2B as its preferred alternative after review of four final alternatives and input from C.A.C. and general public is not a correct sentence. City, staff and consultants selected this alternative after July 6, 1982 public meeting in which only three alternatives were presented.

27-9 9. Page 5-45: Alternative 2B says sludge would be covered daily to minimize infiltration. However, on Page 4-107 the E.I.S. says city would probably stockpile sludge. Which method is to be used and what are the environmental consequences?

27-10 10. Page 5-52: In discussion of effects of flood conditions, does the city of Arlington dike around its landfill create obstructions equal to or greater than levees around the drying beds. If so, what can be done to mitigate condition?

27-11 11. Page 5-60: Will current "official" wasteload allocation of 5/5/3 be implemented? If so, what effect will this have on Alternate 2B? If implemented, what would be added cost to Alternatives 2B and 3.

27-12 12. Page 5-63: E.I.S should show data to verify statement at top of page that until recently present Village Creek Plant has not consistently produced a 10/15 effluent

27-13 13. Page 5-87: E.I.S. should show area map of odor effects using chemicals vs covers for various seasons, wind velocities and directions. This is in reference to statement in second paragraph.

27-14 14. Page 5-147: What is the amount of power consumed by the sludge process of Alternative 2B?

27-15 15. Page 5-161: What is probability that chemical addition for odor control will be satisfactory? What is probability that "state of art air collection and scrubbing" will be satisfactory?

27-6 See Part II, Section C of the Final EIS, response to Issue 1a.

27-7 See Part II, Section C of the Final EIS, response to Issue 1b.

27-8 The City of Fort Worth originally evaluated three "final" alternatives designated as 1, 2A, and 3. The engineering cost and environmental aspects of each of these alternatives were evaluated thoroughly and presented to the CAC and the general public. On 6 July 1982, the Fort Worth City Council approved Alternative 2A as the City's preferred plan.

In response to citizen's concerns, the Fort Worth City Council subsequently instructed City staff to evaluate an additional alternative which would include expanding the Village Creek WWTF and disposing of sludge in a landfill in a different location. In response to the City Council's request, City staff and consultants developed a fourth "Final" alternative referred to in the Draft EIS as 2B.

The Fort Worth City Council officially adopted 2B as the City's proposed alternative on 16 November 1982. The City of Fort Worth presented Alternative 2B to the CAC in a meeting on 6 December 1982. The decision in Section 4.9 on page 4-131 of the Draft EIS has been revised to reflect the above information (see Part III of the Final EIS).

27-9 See Part II, Section C of the Final EIS, response to Issue 1c.

27-10 This issue is beyond the scope of this EIS. The USCOE and the Federal Emergency Management Agency may be contacted for information about obstructions in the floodway below the Village Creek WWTF.

27-11 See response to Comment 11-2.

27-12 Table 4-11 (Pages 4-8 and 4-9) of the Draft EIS included discharge data for the Village Creek WWTF from March 1979 through December 1982. This table has been updated in the Final EIS (see Part III, Section B) Beginning in April 1983, the Village Creek WWTF has produced a 10/15 effluent (or better) every month.

27-13 See Part II, Section C of the Final EIS, response to Issue 1a. Detailed information on odor impacts and the effectiveness and cost of various alternative odor control methods can be found in a report prepared by Alan Plummer and Associates, Inc. and Malcolm Pirnie (APAI/MP), a joint venture, for the City of Fort Worth. This report is summarized in Appendix B in the Final EIS.

It is my strong belief that the only way to consistently control odors will be to provide covers and scrubbers over all primary liquid handling systems and the complete elimination of the sludge drying beds.

Very truly yours,

George M. Cloyd, P.E.

GMC:cpc
cc: Honorable Tom Vandergriff
Honorable Martin Frost
Councilman Gary Bruner

27-14 Following the anaerobic digestion process, in the selected plan (Alternative 2B), there are four energy using steps. These four steps are:

(1) Transfer sludge from digester to dewatering building
(2) Condition sludge using chemical conditioning
(3) Dewatering sludge using belt or plate presses
(4) Landfill sludge onsite using City equipment

The energy usage associated with these four steps is estimated by analyzing each process. The energy usage of each process is estimated from manufacturer's data as follows:

A. Transferring of sludge from digester to dewatering building uses 350,000 kilowatt hours (kwh) per year. This assumes transfer of 118 dry tons per day at 3% solids content and a pumping efficiency of 40% at 100 ft. of head.

B. Chemical conditioning of sludge prior to dewatering uses approximately 500,000 kwh/year. This includes both sludge mixing and chemical preparation energy use.

C. Mechanical dewatering systems according to most manufacturers, use on the average, 60 kwh per dry ton of solids dewatered. This amounts to 2,600,000 kwh/year at an average dry solids loading (before chemicals) of 118 tons per day.

D. The landfilling operation using one elevating scraper (250 HP), one bulldozer (200 HP), one tracked front loader (175 HP), one motor grader (125 HP), and three dump trucks (150 HP each) consumes up to 1,200 HP at an average of 3 hours per day, 5 days per week. Converted, this is an equivalent to an energy usage of nearly 5,000,000 kwh/year.

The total estimated energy use of the sludge processing system of the selected plan is 8,450,000 million kwh/year. At an equivalent cost of $0.06 per kwh, this amounts to an annual expenditure of about $507,000.

27-15 See Part II, Section C of the Final EIS, response to Issue 1a.

APPENDIX B

ODOR CONTROL
AT THE
CITY OF FORT WORTH
VILLAGE CREEK WASTEWATER TREATMENT PLANT

A. Background:

The draft facility plan and EIS for the City of Fort Worth VCWWTP did not include specific recommendations for odor control. Such recommendations were not included because the City wanted to make sure that the plan for future odor control would be environmentally acceptable and cost-effective, which would require a detailed study beyond the scope of work in the facility planning consultant's contract. Wording in the draft facility plan and EIS stated that odor control by chemical addition or other effective methods would be utilized. Since several comments received at the public hearing and in comment letters on the draft facility plan and EIS requested that specific odor control measures be included in the final EIS, the City hired a consultant to make a detailed odor control study and recommend odor control measures as soon as possible. Summarized below are the consultant's initial findings and recommendations, and the City of Fort Worth's plan for measures to be taken to effectively control odors at the VCWWTP.

B. Consultant's Report on Odor Situation and Assessment and Recommended Plan

ODOR SITUATION AND ASSESSMENT AND RECOMMENDED PLAN

Report Summary

The Village Creek Wastewater Treatment Plant (WWTP) is a 96 MGD advanced secondary treatment facility owned and operated by the City of Fort Worth, Texas. Wastewater treatment is provided by screening, grit removal, primary settling, activated sludge aeration, final settling, filtration and effluent disinfection. Primary and waste activated sludges are thickened and anaerobically digested. Digested sludge is dewatered on nearby sludge drying beds. The plant site occupies approximately 125 acres; the drying bed site encompasses about 300 acres.

Historically the WWTP has been identified as a source of odors considered typical for a plant of this treatment process and size. In the late 1970's odor complaints from plant neighbors increased concurrent with a major plant expansion and extensive residential development in nearby Arlington. The plant has conducted a number of studies and programs, directed at controlling odors and considerable improvement in off-site odor conditions has been achieved. The number of complaints have decreased, however complaints continue to be reported. Accordingly, the City of Fort Worth retained Alan Plummer and Associates, Inc. and Malcolm Pirnie, Inc. (APAI/Pirnie) to perform a comprehensive odor study and recommend remedial actions for the WWTP.

APAI/Pirnie conducted initial investigations and subsequent odor control evaluations in September-December 1983. Initial investigations consisted of the following key activities:

- Informational meetings with WWTP personnel;
- Collection of available odor data;
- On-site measurements of wastewater sulfide, airborne hydrogen sulfide, odor strengths and characteristics;
- Measurements of performance of existing odor control systems; and
- Odor surveys of drying bed site and neighborhoods in proximity to WWTP.

Wastewater sulfide and airborne hydrogen sulfide were measured at preliminary and primary treatment units and at the primary sludge gravity thickeners. Measured values were consistent with previously collected WWTP data and typical for treatment systems in similar climates. No measureable hydrogen sulfide was detected at other wastewater treatment units.

Significant odors perceived at the WWTP consisted of moderate to strong sewage and sulfide odors at preliminary and primary treatment units, strong sludge odors within the enclosed gravity thickeners and in the centrifuge building, and an intermittant strong sour gas odor in the vicinity of the anaerobic digesters. On-site evaluations of existing odor control scrubbers indicated that these units are not removing odors effectively under current operating conditions. Scrubber emmissions were odorous. Other plant odors were very mild and typical of similar processes at other plants (for example, a mild to moderate musty odor at the aeration tanks). Odors perceived at the sludge drying beds were - predominantly mild musty and vegetation odors. Occasional sludge odors were detected. No hydrogen sulfide was measured or perceived except within 20 feet of a sludge discharge pipe.

Odor surveys were performed in adjacent neighborhoods at various times during the day and night. During neighborhood odor surveys, odors were perceived which were similar in character to odors perceived at some WWTP sources and at the drying beds sites. The WWTP odors detected off-site included primary clarified wastewater, digester gas and existing scrubber exhaust odors. These odors were detected only occasionally, and in neighborhoods downwind and nearest the WWTP and drying beds sites. Mild on-site odors from other low level plant sources were not perceived in the neighborhoods at any time during the surveys.

On the basis of the initial investigations, four odor sources were identified as having a significant potential for off-site perception under average to critical meteorological conditions, as follows:

- Intermittant, fugitive digester gas;
- Primary clarifiers (sewage and sulfide odors);
- Existing scrubber exhausts; and
- Sludge drying beds.

Other plant sources are considered to have insignificant potential for off-site detection. APAI/Pirnie evaluated alternative methods for controlling primary clarifier odors. Cost and functional evaluations were performed for chemical addition, covering and scrubbing, preaeration with air, and preaeration with high purity oxygen. Covering the primary clarifiers and scrubbing the exhaust air was identified as the preferred alternative based on lowest present worth (cost) and the highest functional rating.

Alternatives also were considered for improving the performance of existing odor control scrubbers. A combination of enhanced chemical feed, modifications, and replacement with more efficient units, was identified as an optimum approach pending on-site pilot testing.

Based on the results of the study investigations, a Plan for Odor Control for the Village Creek WWTP was developed. Key elements of the plan include the following:

- Continue and augment prechlorination to control wastewater sulfides.
- Perform scrubber pilot testing to select key design parameters and design covers and scrubber systems for primary clarifiers and primary effluent pump station wet wells.
- Continue to monitor, collect and evaluate odor situation data at both on-site and off-site areas.
- Test increased chemical feed and modified configuration performance for existing odor control scrubbers. Pending test results, implement design and construction of scrubber system improvements.
- Test and implement new procedures to reduce potential odor impacts from sludge drying beds.
- Continue implementing current improvements to digester gas handling system and eliminate fugitive gas releases.

C. City of Fort Worth Plan for Odor Control

The City of Fort Worth plans to implement the recommendations made in the consultant's odor control plan. Such work will include:

- Augmentation of prechlorination to further improve odor control until permanent plant modifications as described below can be made. An additional bulk chlorine storage tank has been installed to allow for increased chlorine additions.
- Scrubber pilot testing will be performed in conjunction with a consultant to select key design parameters. Covers and scrubber systems will be designed and installed on primary clarifiers and primary effluent pump station wet wells.
- Continuance, with the assistance of a consultant, to monitor, collect and evaluate odor situation data at both on-site and off-site areas.
- Test increased chemical feed and modified configuration performance for existing odor control scrubbers with the aid of a consultant. Pending test results, implement design and construction of scrubber system improvements.
- Test and implement new procedures to reduce potential odor impacts from the sludge drying beds. These will include the use of a horizontal auger to speed the drying time of sludge in the beds, which will allow reduced usage of the drying beds in the southeast quarter, and reducing work in the drying beds when the wind is blowing from the north.
- Implementation of improvements to the digester gas handling system to eliminate futitive gas releases. Improvements to the system including replacement of manual with automatic drip traps, which should prevent previous problems, have already been made.

APPENDIX C

EMERGENCY USE OF SLUDGE DRYING BEDS

APPENDIX C

CONDITIONS FOR EMERGENCY USE OF SLUDGE DRYING BEDS

The City of Fort Worth plans to retain the existing sludge drying beds, with the exception of removing the beds in the northwest corner to maintain river hydraulic conditions, primarily to use as a backup for emergencies. Since wastewater treatment is a continuous processing operation that cannot be readily terminated, it is advantageous to have as much backup for unit operations as possible. The existing sludge drying beds would serve as a backup to the proposed mechanical sludge dewatering and landfill disposal operations. Since a certain amount of backup is included in most of the treatment process unit operations to compensate for peak flow conditions and maintenance, a certain amount of backup for emergencies exists within the proposed expanded treatment system, not including use of the drying beds.

The following description further defines "emergency conditions" under which the sludge drying beds would be used. First, solids (sludge) can be retained in the system by not wasting to digestion from the secondary portion of the treatment process. This could only be done for a day or two until it affected the treatment operation. Backup of solids in the system would adversely affect treatment. Some reserve capacity exists in the sludge digesters, as proposed. Using the ultimate sludge production rate of 202 tons per day, it was calculated that at least five (5) days of storage capacity would be available in the digesters. The five (5) day period would be available to handle any problems with the digested sludge pumping or mechanical dewatering system before pumping digested sludge to the drying beds. If there were problems with the use of the digesters, the undigested sludge could be pumped to mechanical dewatering and immediately landfilled and covered.

The digested sludge pump stations would be designed so that the total flow could be pumped to the mechanical dewatering site with the largest pump out of service. For example, if it is necessary to pump 750 gallons per minute (gpm) of sludge, the pump station would contain three (3) pumps that could pump 375 gpm each, or some like miltiple. Dual sludge pipelines would be included to the mechanical dewatering site. As in the above example, each line would carry 750 gpm. Digested sludge storage tanks would be included at the mechanical sludge dewatering site for sludge blending and to allow uniform feed to the dewatering equipment. The storage tanks would have an approximate capacity of 2.5 million gallons, or would store about 3 days sludge production. A total of 8 days of storage would therefore be available if the mechanical sludge dewatering equipment could not be utilized before digested sludge would be pumped to the drying beds.

Mechanical dewatering equipment for the sludge would be designed to dewater, within a 14-hour period, all digested sludge produced each day, seven (7) days per week. If some equipment is not operable, the dewatering time can be increased to obtain the required amount of dewatered sludge. By converting to a 22 hour per day operation, one-third of the dewatering units could be out of service, and the daily sludge production could be dewatered. As an example, if 12 belt presses were required for a 14-hour day, eight (8) presses could produce the same amount of dewatered sludge in a 22-hour day.

The last item is the dewatered sludge storage. It is planned to provide approximately 2 days of storage for sludge prior to landfilling. During wet weather periods, additional sludge storage would be available in the covered compost area for composting sludge. Also, during wet weather, sludge would be stored in the digesters and digested sludge storage tanks at the dewatering site.

Based on the amount of backup in the proposed solids handling systems, as described above, it is believed that use of the sludge drying beds would be minimal.

APPENDIX D

SECTION 10/404
PERMIT APPLICATION
AND 404(b)(1) ANALYSIS

CITY OF FORT WORTH, TEXAS

OFFICE OF THE CITY MANAGER
1000 THROCKMORTON STREET
FORT WORTH, TEXAS 76102
870-6111 / AREA CODE 817

January 3, 1984

District Engineer
Fort Worth District
U. S. Army Corps of Engineers
P. O. Box 17300
Fort Worth, Texas 76102

Attention: Mr. Brooks Carter

Gentlemen:

404 AND SECTION 10 PERMIT FOR
CITY OF FORT WORTH VILLAGE CREEK
WASTEWATER TREATMENT PLANT
SLUDGE MANAGEMENT PROJECT

Enclosed is one (1) copy of an application (Form 4345) and accompanying drawings for a 404 and Section 10 permit for our proposed project which is to be located in Tarrant County, Texas. Also enclosed are mylar reproducibles of the enclosed drawings. This application has been prepared in accordance with previous discussions and meetings with your staff.

If you have any questions during the processing of this application, please contact myself or Mr. Ronald B. Sieger of BCFN at (817) 336-7161. We believe the application to be complete and we respectfully request approval from your agency on this 404 and Section 10 permit application.

Sincerely,

David A. Ivory
Robert L. Herchert
City Manager

RLH:JWS:hl
Enclosures

xc: Mr. John H. Cook
Mr. Ronald B. Sieger

RECEIVED
JAN 9 1984
6 ES

APPLICATION FOR A DEPARTMENT OF THE ARMY PERMIT

For use of this form, see EP 1145-2-1

The Department of the Army permit program is authorized by Section 10 of the River and Harbor Act of 1899, Section 404 of P. L. 92-500 and Section 103 of P. L. 92-532. These laws require permits authorizing structures and work in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Information provided in ENG Form 4345 will be used in evaluating the application for a permit. Information in the application is made a matter of public record through issuance of a public notice. Disclosure of the information requested is voluntary; however, the data requested are necessary in order to communicate with the applicant and to evaluate the permit application. If necessary information is not provided, the permit application cannot be processed nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and checklist) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

1. Application number (To be assigned by Corps)

2. Date
20 12 83
Day Mo. Yr.

3. For Corps use only.

4. Name and address of applicant.

City of Fort Worth
P. O. Box 870
Fort Worth, Texas 76102

Telephone no. during business hours
A/C (817) 870-8240
A/C ( )

5. Name, address and title of authorized agent.

Robert L. Herchert, City Manager
City of Fort Worth
P. O. Box 870 - Fort Worth, Texas 76102

Telephone no. during business hours
A/C (817) 870-8240
A/C ( )

6. Describe in detail the proposed activity, its purpose and intended use (private, public, commercial or other) including description of the type of structures, if any to be erected on fills, or pile or float-supported platforms, the type, composition and quantity of materials to be discharged or dumped and means of conveyance, and the source of discharge or fill material. If additional space is needed, use Block 14.

See attached narrative and drawings, Item 6.

7. Names, addresses and telephone numbers of adjoining property owners, lessees, etc., whose property also adjoins the waterway.

See attached Item 7.

8. Location where proposed activity exists or will occur.

Address: West Fork of Trinity River Floodplain North of Village Creek Wastewater Treat. Plant
Street, road or other descriptive location

Fort Worth
In or near city or town

Tarrant Texas
County State Zip Code

Tax Assessors Description: (If known)
Map No. Subdiv. No. Lot No.
Sec. Twp. Rge.

9. Name of waterway at location of the activity.

West Fork of Trinity River

ENG Form 4345, 1 OCT 77 Edition of 1 Apr 74 is obsolete.

10. Date activity is proposed to commence. May 1985

Date activity is expected to be completed May 1986

11. Is any portion of the activity for which authorization is sought now complete? ☐ YES ☒ NO
If answer is "Yes" give reasons in the remark section. Month and year the activity was completed __________. Indicate the existing work on the drawings.

12. List all approvals or certifications required by other federal, interstate, state or local agencies for any structures, construction, discharges, deposits or other activities described in this application.

Issuing Agency	Type Approval	Identification No.	Date of Application	Date of Approval

See attached Item 12

13. Has any agency denied approval for the activity described herein or for any activity directly related to the activity described herein?

☐ Yes ☒ No (If "Yes" explain in remarks)

14. Remarks (Checklist, Appendix H for additional information required for certain activities).

See attached narrative and drawings, Item 6.

15. Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

Signature of Applicant or Authorized Agent

The application must be signed by the applicant; however, it may be signed by a duly authorized agent (named in Item 5) if this form is accompanied by a statement by the applicant designating the agent and agreeing to furnish upon request, supplemental information in support of the application.

18 U. S. C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of The United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisioned not more than five years, or both. Do not send a permit processing fee with this application. The appropriate fee will be assessed when a permit is issued.

ITEM 6. - REMARKS AND ADDITIONAL INFORMATION

Introduction

The City of Fort Worth owns and operates the Village Creek Wastewater Treatment Plant. The City completed a 201 Facilities Plan for the plant in January 1983, and a Draft Environmental Impact Statement covering the 201 Facilities Plan was issued in July 1983. A public hearing concerning the environmental impacts was held in August 1983.

Currently wastewater treatment plant sludge is anaerobically digested and pumped to sludge beds for drying. The sludge management system proposed in the 201 Facilities Plan is to replace the sludge drying beds with mechanical sludge dewatering facilities followed by a sludge-only landfill. The plan also includes the development of a beneficial reuse program for the sludge in conjunction with the sludge-only landfill.

The City has purchased a parcel of land located immediately north of the treatment plant (see Figure 1 of 7). The total site, which consists of approximately 481 acres, is situated in the Trinity River floodplain. The Trinity River passes through the southeast corner of the site, and a privately owned landfill borders the northwest corner of the site. The proposed sludge-only landfill will occupy approximately 134 acres of the northern portion of the site.

To prevent a rise in the 100-year flood water surface elevations due to the provision of levees around the landfill site, a flood relief channel will be constructed (see Figure 2 of 7) and a portion of the levee around the sludge drying beds will be removed (see Figure 5 of 7). With these two improvements, flood waters will be directed around the landfill levees without causing a rise above the allowable 100-year flood water surface elevations or creating excessive velocities, all as required by the applicable National Flood Insurance Program (NFIP) regulations. The Federal Emergency Management Agency (FEMA) has reviewed the project and has accepted the hydrological study and conceptual plan submitted. During the design phase of this project, it was determined through field surveys that approximately 114 acres of land will be available for the landfill and 20 acres for the dewatering area which represents more area than the 110 total acres described in the conceptual plan. The hydrological study has been reviewed and the proposed landfill area from the design phase will not cause an increase in flood water elevations. FEMA has been kept advised of the progress on this project.

Landfill And Sludge Dewatering Site

The landfill and sludge dewatering facilities will be used to process and dispose of wastewater sludge generated at the Village Creek Plant. The project is as proposed by the 201 Facilities Plan. The landfill and sludge dewatering facilities will occupy approximately 134 acres. The levees around the site will have a top elevation of 485.5, which is the Standard Project Flood elevation, and side slopes of 3 to 1 as shown on Fig. 3 of 7. The quantity of material required for the levees is approximately 323,000 cubic yards. Some of the locations from which earth will be available for the levees are:

1. The proposed flood relief channel.
2. Excess material resulting from modifications to the existing sludge drying beds.
3. From the area of the landfill site itself.

4. Elsewhere within the city property boundary lines.

The levees will be planted with Bermuda grass for erosion control, and will be constructed using modern equipment and construction methods. The mitigation plan for this area is as described elsewhere in these documents.

Flood Relief Channel

The flood relief channel is required to maintain the flood elevations in the area of the landfill site. The flood relief channel will be 800 feet wide at the bottom with 5 to 1 slopes on each side. The bottom of the channel will be at a maximum elevation 460.0 as shown on Figures 3 and 4 of 7. The flood relief channel will occupy approximately 96 acres. If the material within the flood relief channel is suitable for the earth levees around the landfill site, it may be used for that purpose. Stone riprap will be provided at the eastern and western ends of the channel for erosion control. The mitigation plan for this area is as described elsewhere in these documents.

Modification to the Sludge Drying Beds

The purpose of modifying the existing sludge drying beds is to maintain the present flood elevations and velocities in this area. The levees of the existing sludge drying beds will be relocated as shown in Figure 5 of 7. This relocation of the levees will return approximately 39 acres to the flood plain adjacent to the Trinity River. The area returned to the floodplain will be graded such that there is little or no slope and it will be periodically inundated with water. Approximately 48,500 cubic yards of excess earth will be available after relocation of the levee system. This excess material may be reused at the proposed landfill site, if suitable. The sludge which will be displaced by the modifications to the sludge drying beds will be relocated to the remaining portion of the drying beds, except for the sludge used for fertilization as described in the mitigation plan. The levee system will be constructed using modern construction methods and equipment. The mitigation plan for this area as well as other areas of this proposed project is described elsewhere.

Pipeline Crossings of the Trinity River

There will be five 12-inch pipelines and two 16-inch pipelines which will cross the Trinity River as shown on Figures 6 and 7 of 7. The pipelines will be used to transfer material, power, and control signals to and from the Village Creek Wastewater Treatment Plant and the proposed landfill site. The type of pipe which will be used at the crossing will be flex joint ductile iron river crossing pipe. Due to the high metals content of the soil in the river bottom as noted in the report titled "Final Report: Trinity River Bottom Sediment Reconnaissance Study" by the University of Texas at Arlington, the backfill over the pipelines will be imported from another location. The spoil from the river bed excavation will not be used as backfill, but will be disposed of inside the landfill levee. The amount of backfill to be imported is estimated at 1450 cubic yards. The backfill in the river bottom will be a clean granular material suitable for this installation. Excavation of the pipe trench across the Trinity River will be performed by drag line, backhoe, and/or clam shell. The pipeline will be laid under wet conditions and will have a minimum of 5 feet of cover over the top of the pipe in the Trinity River bottom.

Mitigation Plan

The proposed project will result in the loss of wildlife habitat, primarily weedy field and bottomland forest types. These losses will occur due to construction of the flood relief channel, landfill, and beneficial reuse areas (Figure 1 of 7). Approximately 3 acres of COE designated wetland in the vicinity of the landfill and flood relief channel will be lost due to the project. Some of the existing land area will be converted to a different habitat type as a result of construction. Existing aquatic habitat will be maintained in the flood relief channel insofar as reasonably possible, and new floodplain habitat will result from relocating the levee of the sludge drying beds.

The following plan is proposed to mitigate the loss of wildlife habitat occurring as a result of this project. The plan includes measures which will help to minimize the disturbance of aquatic habitat during construction operations. In addition, an important buffer zone of bottomland forest and grassland vegetation will be left undisturbed along the Trinity River adjacent to the proposed beneficial reuse area. A third aspect is revegetation to control erosion and restore wildlife value in disturbed areas. Finally, one large area under the current plan will remain undisturbed and be used for wildlife. Proposed mitigation measures are further described in the following sections.

Another item for consideration for the mitigation plan is the City of Fort Worth's recent donation of the 83 acre Riverside Wastewater Treatment Plant site to the Park & Recreation Department of the City of Fort Worth for the development of the Gateway Park. The Master Plan for the Gateway Park was developed for the Streams & Valleys Committee and provides a unique opportunity to establish an area along the West Fork of the Trinity River for organized recreation and wilderness activities.

A. Flood Relief Channel

The proposed flood relief channel traverses an abandoned gravel quarry which provides fish and wildlife habitat consisting of alternating strips of flooded channels (from gravel mining operations) and vegetated spoil levees. Bottom profiles of these channels are extremely irregular, with depths varying from 15-30 feet. After construction, water level in the flood relief channel will be allowed to fluctuate with the level of the Trinity River during high flow stages. The proposed channel is at elevation 460.0. However, where the existing ground line is lower than elevation 460.0, these deeper pools will be preserved as much as possible, consistent with construction requirements. Preserving deep pools will benefit fish and other aquatic organisms by providing refuge areas during periods of drought.

Another potential adverse impact on aquatic biota is siltation and turbidity due to bank erosion in the flood relief channel. Erosion will be controlled by planting bermuda grass along banks and slopes. In addition, flat areas will be revegetated using plants which have food value for wildlife. Revegetation procedures are described in Section E.

B. Beneficial Reuse Area

Vegetation in the beneficial reuse area is primarily grassland, with a narrow strip of bottomland forest adjacent to the Trinity River. This combination of forested and open areas provides edge habitat which is valuable for wildlife. To preserve this resource, an undisturbed area including the forested area along the river plus a 20 foot strip of grassland between the trees and the beneficial reuse area will be left in its natural state.

C. Sludge Drying Beds

As part of the proposed project, the levee of the existing sludge drying bed will be relocated. This will provide a greater area of floodplain adjacent to the Trinity River. The area returned to the floodplain will be graded such that there is little or no slope and it will be periodically inundated with water. To improve the habitat potential of the floodplain, the area will be revegetated with plant species which have food value for wildlife. Planted vegetation will be species recommended by the Soil Conservation Service (SCS) including switchgrass, kleingrass, sweet clover, vetch, Maximilian sunflower, Illinois bundleflower, and Englemann daisy. The new levee will be planted with Bermuda grass to control erosion. A temporary cover crop will be planted in fall if construction is completed during summer or early fall. A planting of perennial vegetation the following spring will occur if a temporary planting is required. Further details are provided in the revegetation section.

D. Other Areas

The area designated as F in Figure 1 of 7 may be partially disturbed as a result of construction of the flood relief channel. However, an effort will be made to minimize disturbance in this area to the extent possible, and disturbed areas will be revegetated by species appropriate for erosion control or wildlife use after construction is completed. The area designated as G in Figure 1 of 7 should not be disturbed by construction. The City of Fort Worth has no immediate plans to use this area. The City of Fort Worth has agreed to allow the University of Texas at Arlington and Texas Christian University to use areas F and G for various wildlife studies for the life of the sludge only landfill project.

E. Revegetation

The following recommendations were provided by the District Conservationist for the Soil Conservation Service, Fort Worth Field Office, and will be followed for the completion of the site after construction. A temporary fall planting will be provided if construction is completed after May 15 to November 30.

1. Fall Planting

Fall planting is temporary only, and will be used if construction is completed between May 15 and November 30. The fall planting is to be followed by a spring planting of perennial vegetation.

Seedbed Preparation - Use a one-way plow, tandem disk, bedder or equipment which will accomplish similar results. Tillage equipment should break or mix the top 4-5 inch surface of the soil. Stabilized dry sludge from the drying beds will be applied and tilled into the soil a minimum of 4 inches. The rate of application will be based upon the composition of the dried sludge. Additional tillage operations may be necessary so planting can be on clean, firm seedbed. Additional chiseling may also be necessary on areas which have been severely compacted by heavy equipment.

Temporary Cover Crop - These areas should be planted with some type of small grain such as wheat, oats, rye, barley or other annual cool season plants, which will provide erosion protection of the area prior to planting a perennial warm season vegetation. Optimum planting dates are September 1 to November 30. Planting rates when drilled or broadcasted are as follows:

Wheat - 120 lbs/ac

Oats - 128 lbs/ac

Rye - 112 lbs/ac

Barley - 114 lbs/ac

Fertilizer - Should be applied at a rate of 20 lbs. of nitrogen, 40 lbs. of phosphorous and 20 lbs. of potassium per acre (20-40-20 per acre). Mix will be adjusted based upon the NPK of the sludge applied.

2. Spring Planting

Procedures for spring planting are to be followed if construction is completed between November 30 and May 15, or after a temporary fall planting has been made.

Seedbed Preparation - Same as that stated in the fall planting of temporary cover. Additionally, temporary cover crop must be top killed using an approved contact herbicide or by mechanically undercutting the growing cover crop leaving all residues on or near soil surface. This must be done to reduce competition of annual cover crop with permanent vegetation to be planted and, therefore, insure a successful stand of perennial vegetation. Stabilized dry sludge from the drying beds will be applied and tilled into the soil a minimum of 4 inches. The rate of application will be based upon the composition of the dried sludge.

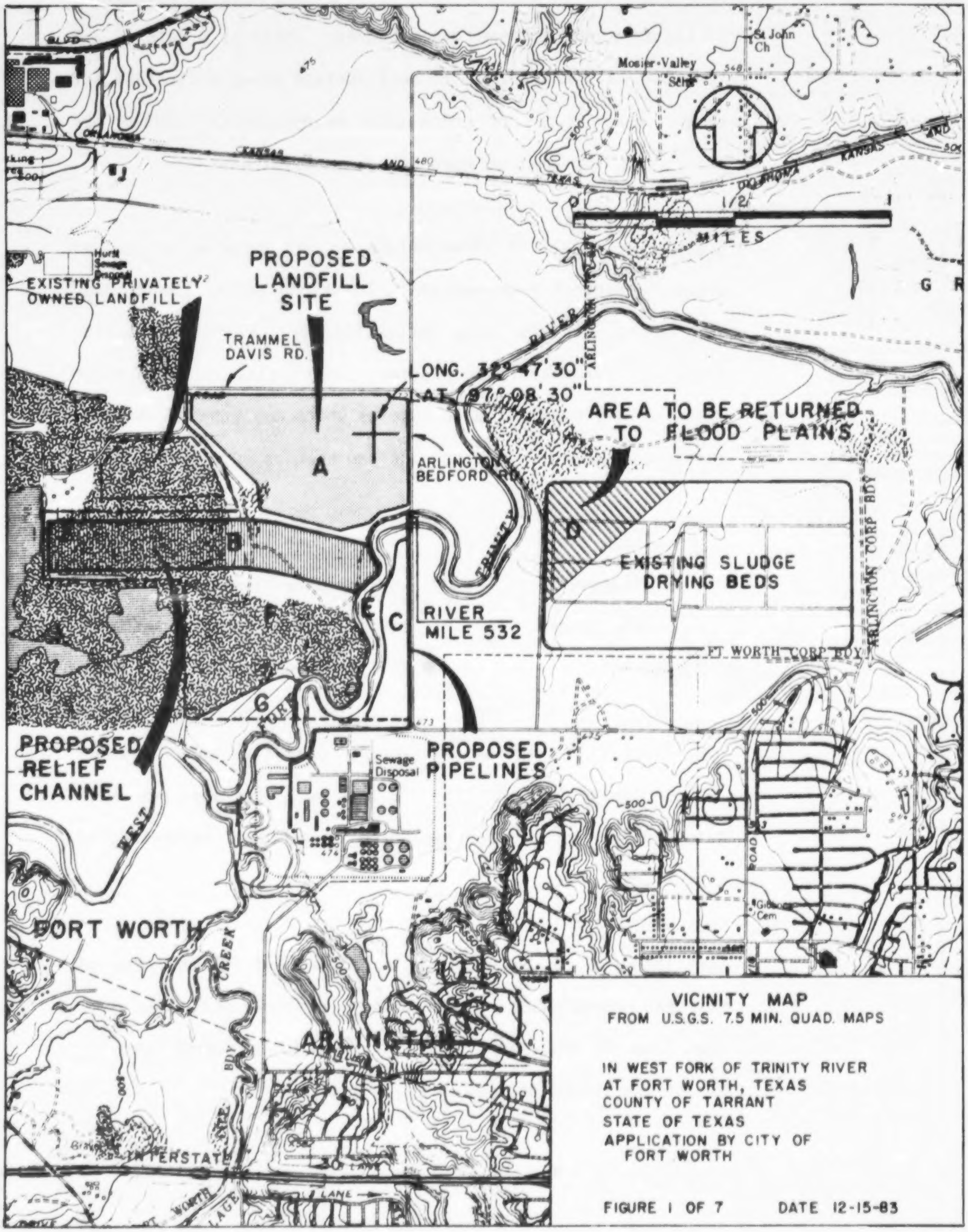
Mulching - To be done if no fall temporary crop is planted or if insufficient residues are produced. Apply at a rate of 2.5 tons per acre and anchor to soil surface using a straight set disk. Other types of mulch such as hydromulch, cotton bur mulch, etc. can also be used at recommended rates.

Grassing - Establish bermudagrass on all sloping or channel areas to protect from erosion. The flood relief channel may be planted with low lying native species. Flatter areas, or areas not susceptable to erosion, can be planted to bermudagrass or may be drilled to species which may enhance the area for some wildlife. This can include species such as:

Switchgrass	7 lbs. pure live seed per acre
Kleingrass	4 lbs. pure live seed per acre
Sweet clover	12 lbs. pure live seed per acre
Vetch	15 lbs. pure live seed per acre
Maximilian sunflower	1 lb. pure live seed per acre
Illinois bundleflower	1.5 lbs. pure live seed per acre
Englemann daisy	2 lbs. pure live seed per acre

Rates should be adjusted depending on ratio or percentage of mixture used.

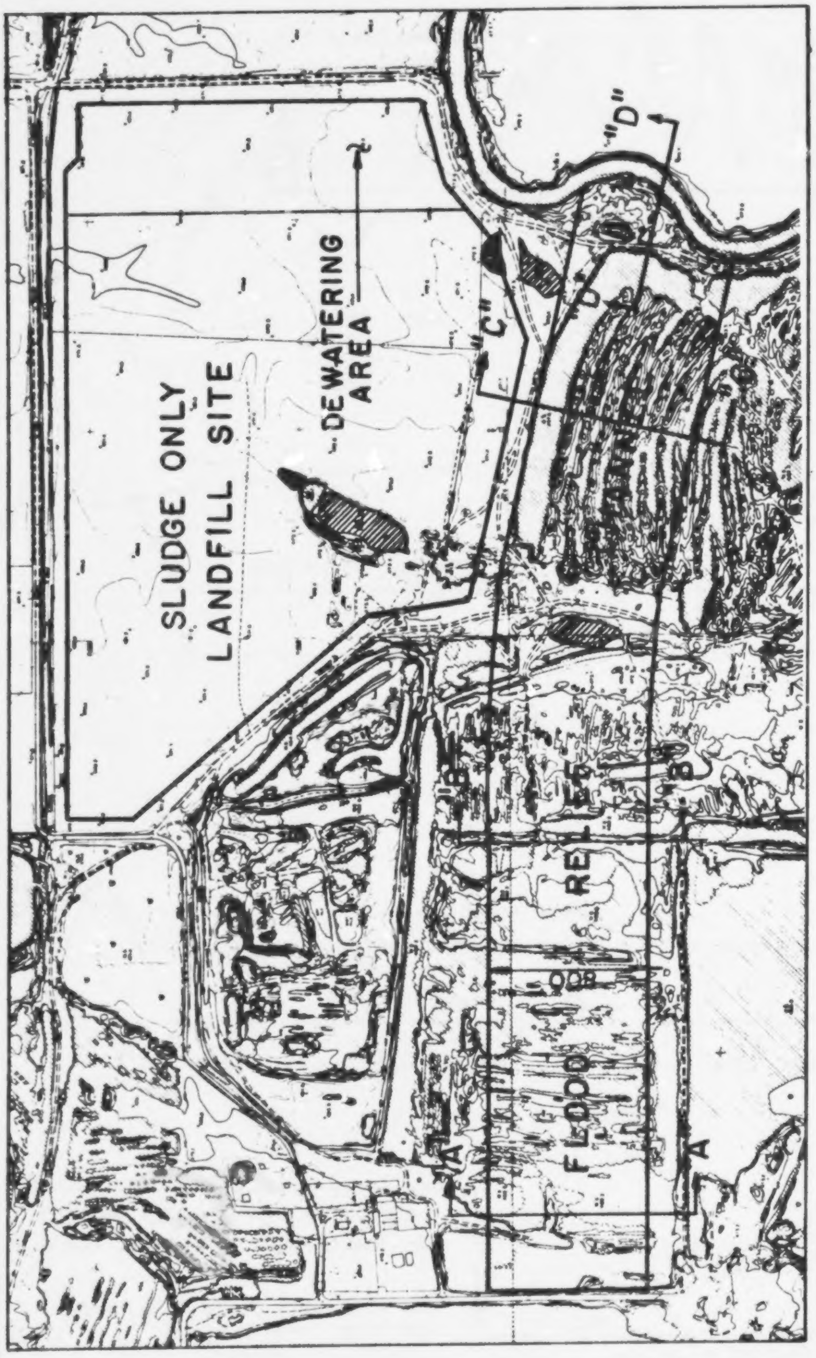
Fertilizer - To be applied at a rate of 80 lbs/acre of nitrogen, phosphorous, and potassium (80-80-80 per acre) at or near time of planting. Mix will be adjusted based upon the NPK of the sludge applied.


PROPOSED LANDFILL SITE
EXISTING PRIVATELY OWNED LANDFILL
TRAMMEL DAVIS RD.
LONG. 32°47'30"
LAT. 97°08'30"
AREA TO BE RETURNED TO FLOOD PLAINS
ARLINGTON BEDFORD RD.
A
B
C
D
E
F
G
EXISTING SLUDGE DRYING BEDS
RIVER MILE 532
FT WORTH CORP BDY
ARLINGTON CORP BDY
PROPOSED RELIEF CHANNEL
PROPOSED PIPELINES
Sewage Disposal
FORT WORTH
ARLINGTON
0 1/2 1
MILES
Mosier-Valley Sch
St John Ch
Gibbons Cem
KANSAS AND TEXAS
OKLAHOMA
TRINITY RIVER
WEST FORK
INTERSTATE

VICINITY MAP
FROM U.S.G.S. 7.5 MIN. QUAD. MAPS

IN WEST FORK OF TRINITY RIVER
AT FORT WORTH, TEXAS
COUNTY OF TARRANT
STATE OF TEXAS
APPLICATION BY CITY OF
FORT WORTH

FIGURE 1 OF 7 DATE 12-15-83


SLUDGE ONLY
LANDFILL SITE
DEWATERING
AREA
"C"
"D"
"B"
"A"
FLOOD RELIEF CHANNEL
EXISTING WETLANDS
0
400
800
FEET

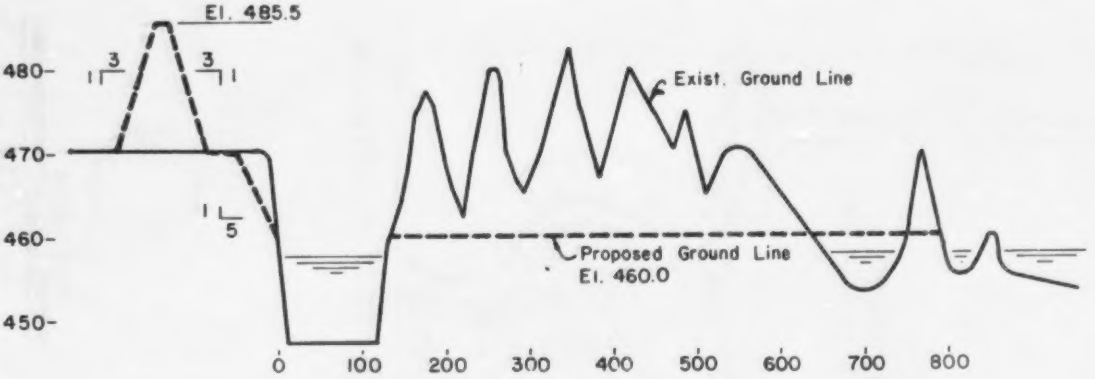
PROPOSED LANDFILL SITE AND FLOOD RELIEF CHANNEL

(SEE RELIEF CHANNEL SECTIONS ON FIGURES 3 & 4 OF 7)

PROPOSED LANDFILL AND
FLOOD RELIEF CHANNEL

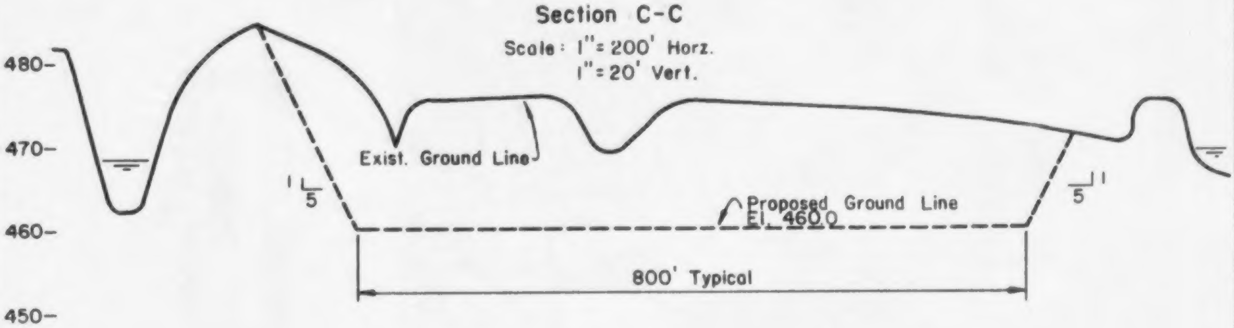
IN WEST FORK OF TRINITY RIVER
AT FORT WORTH, TEXAS
COUNTY OF TARRANT
STATE OF TEXAS
APPLICATION BY CITY OF
FORT WORTH

FIGURE 2 OF 7 DATE 12-15-83

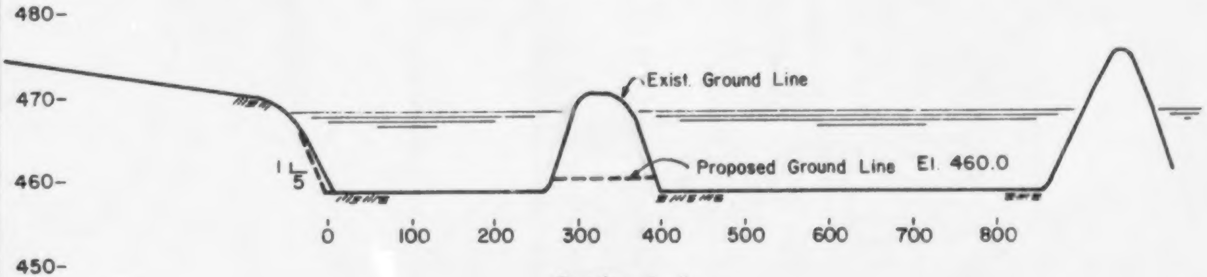

El. 485.5
480–
470–
460–
450–
3
3
1
1
1
5
Exist. Ground Line
Proposed Ground Line
El. 460.0
0
100
200
300
400
500
600
700
800

Section C-C

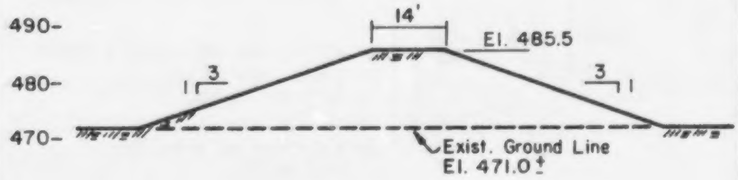
Scale: 1" = 200' Horz.
1" = 20' Vert.


480–
470–
460–
450–
Exist. Ground Line
1
5
Proposed Ground Line
El. 460.0
5
1
800' Typical

Section B-B


480–
470–
460–
450–
Exist. Ground Line
1
5
Proposed Ground Line El. 460.0
0
100
200
300
400
500
600
700
800

Section A-A

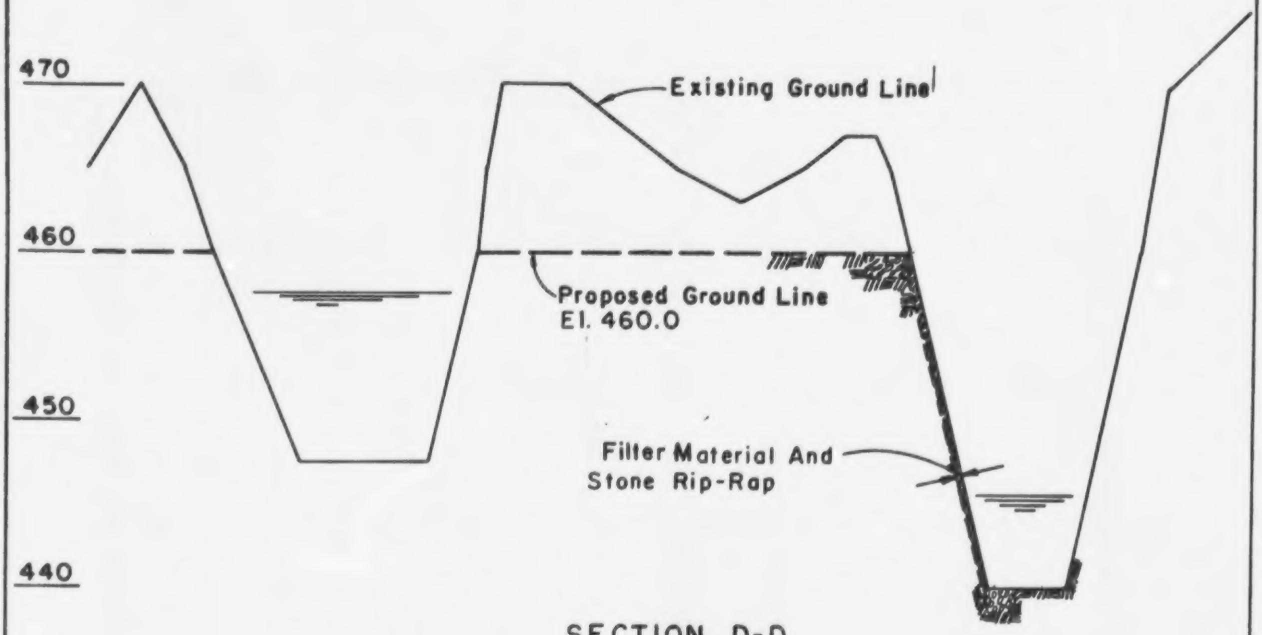

490–
480–
470–
14'
El. 485.5
1
3
3
1
Exist. Ground Line
El. 471.0±

Typical Section Of Landfill Levee
Scale: 1" = 30'

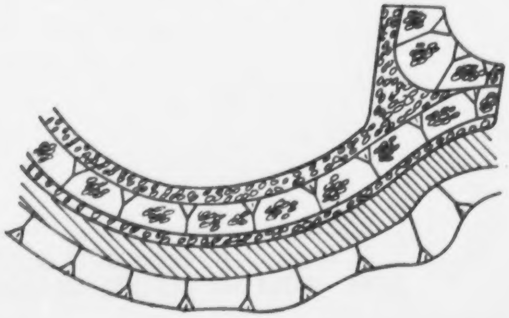
SECTIONS OF FLOOD RELIEF CHANNEL AND LANDFILL LEVEE

IN WEST FORK OF TRINITY RIVER
AT FORT WORTH, TEXAS
COUNTY OF TARRANT
STATE OF TEXAS
APPLICATION BY CITY OF
FORT WORTH

FIGURE 3 OF 7 DATE 12-15-83


470
460
450
440
Existing Ground Line
Proposed Ground Line
El. 460.0
Filter Material And
Stone Rip-Rap

SECTION D-D
Scale - 1" = 100' Horz.
1" = 10' Vert.

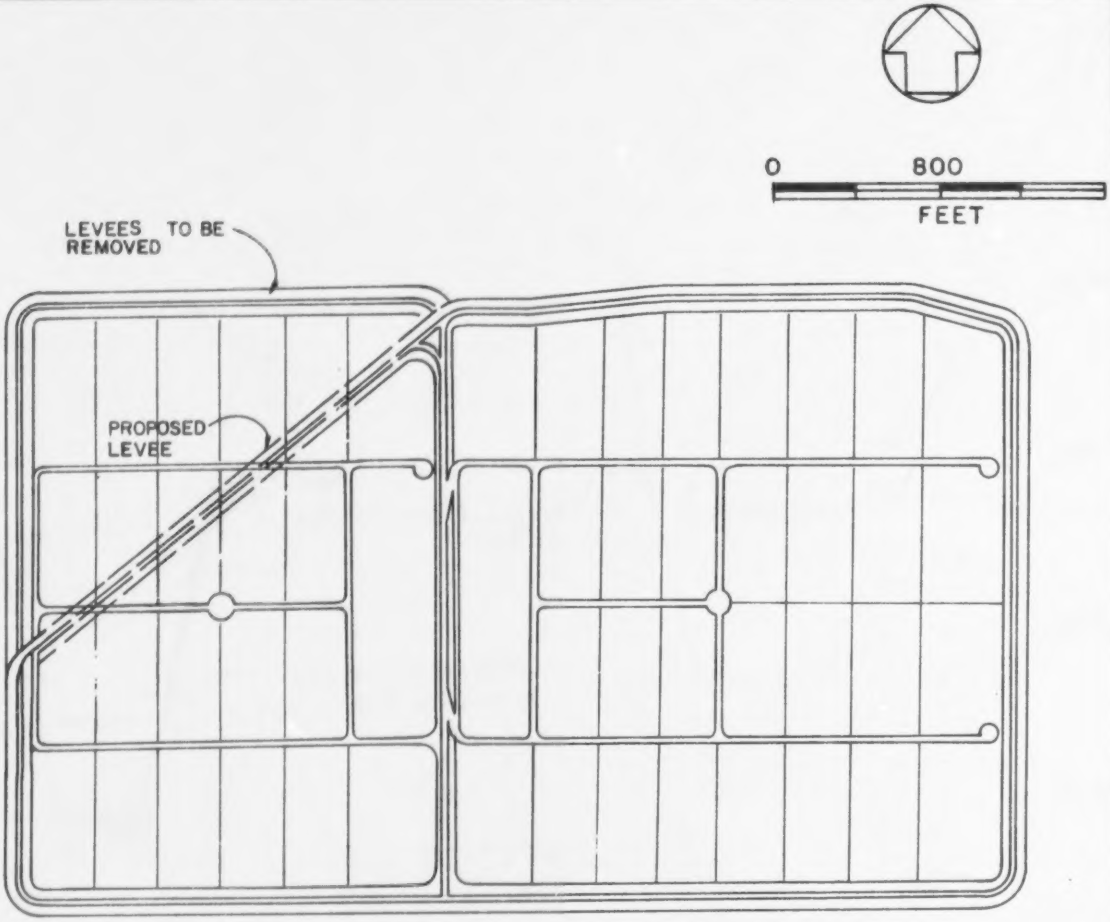


PLAN VIEW OF RIPRAP
AT RIVER ENTRANCE
Northern Half Shown, Southern Half Similar
Scale - 1" = 200'

SECTION OF FLOOD RELIEF
CHANNEL AT RIVER

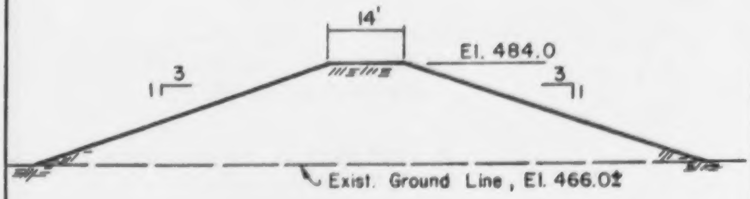
IN WEST FORK OF TRINITY RIVER
AT FORT WORTH, TEXAS
COUNTY OF TARRANT
STATE OF TEXAS
APPLICATION BY CITY OF
FORT WORTH

FIGURE 4 OF 7 DATE 12-16-83


0
800
FEET
LEVEES TO BE REMOVED
PROPOSED LEVEE

MODIFICATION TO THE EXIST. SLUDGE DRYING BEDS

Scale: 1" = 800'


14'
El. 484.0
1
3
3
1
Exist. Ground Line, El. 466.0±

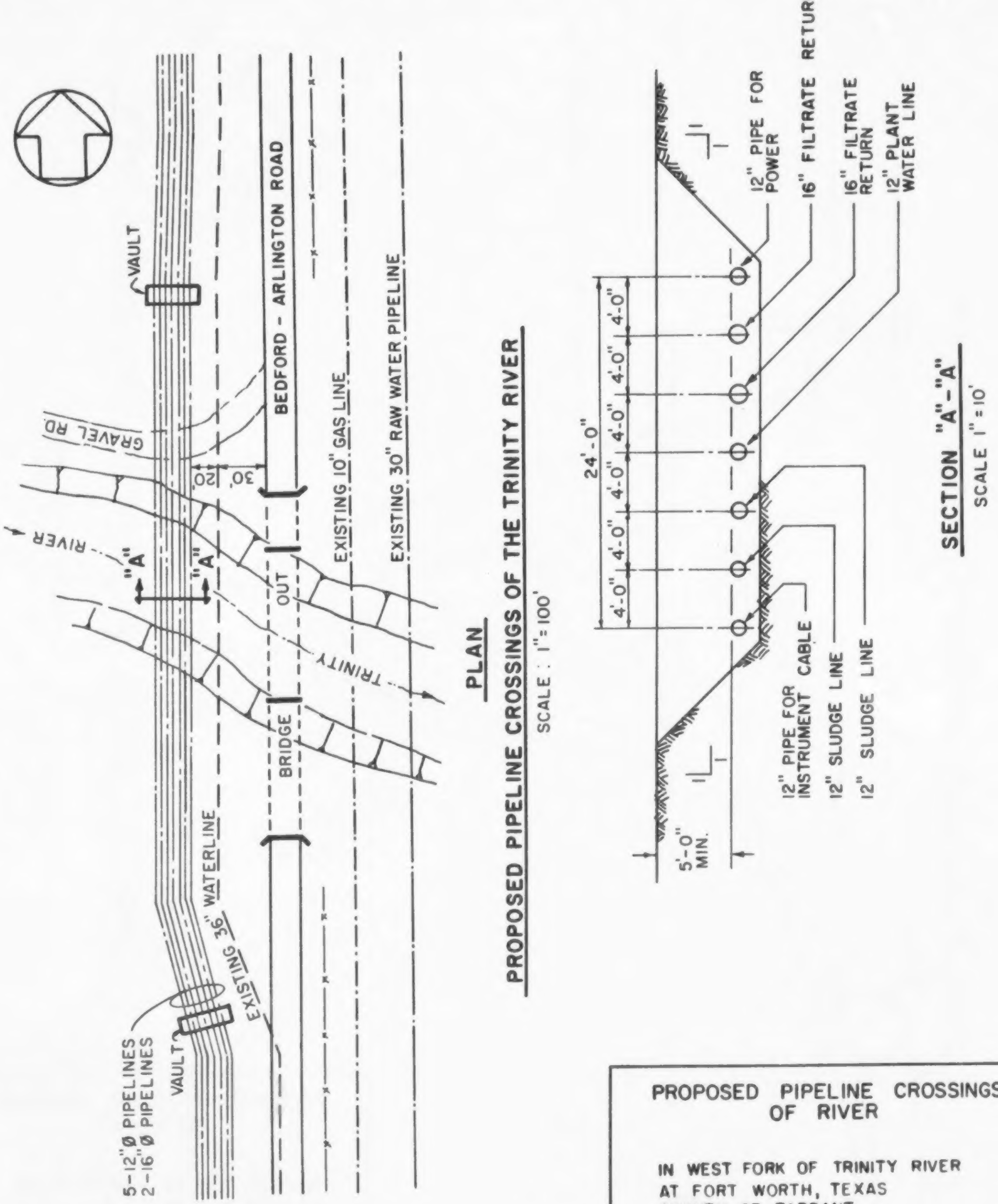
TYPICAL SECTION OF SLUDGE DRYING BED LEVEE

Scale: 1" = 30'

PROPOSED MODIFICATION TO THE EXISTING SLUDGE DRYING BEDS

IN WEST FORK OF TRINITY RIVER
AT FORT WORTH, TEXAS
COUNTY OF TARRANT
STATE OF TEXAS
APPLICATION BY CITY OF
FORT WORTH

FIGURE 5 OF 7 DATE 12-15-83


VAULT
5-12" Ø PIPELINES
2-16" Ø PIPELINES
VAULT
EXISTING 36" WATERLINE
GRAVEL RD.
BEDFORD - ARLINGTON ROAD
20'
30'
RIVER
TRINITY
"A"
"A"
BRIDGE
OUT
EXISTING 10" GAS LINE
EXISTING 30" RAW WATER PIPELINE
24'-0"
4'-0"
4'-0"
4'-0"
4'-0"
4'-0"
4'-0"
5'-0" MIN.
1
1
12" PIPE FOR POWER
16" FILTRATE RETURN
16" FILTRATE RETURN
12" PLANT WATER LINE
12" PIPE FOR INSTRUMENT CABLE
12" SLUDGE LINE
12" SLUDGE LINE

PLAN

PROPOSED PIPELINE CROSSINGS OF THE TRINITY RIVER

SCALE : 1" = 100'

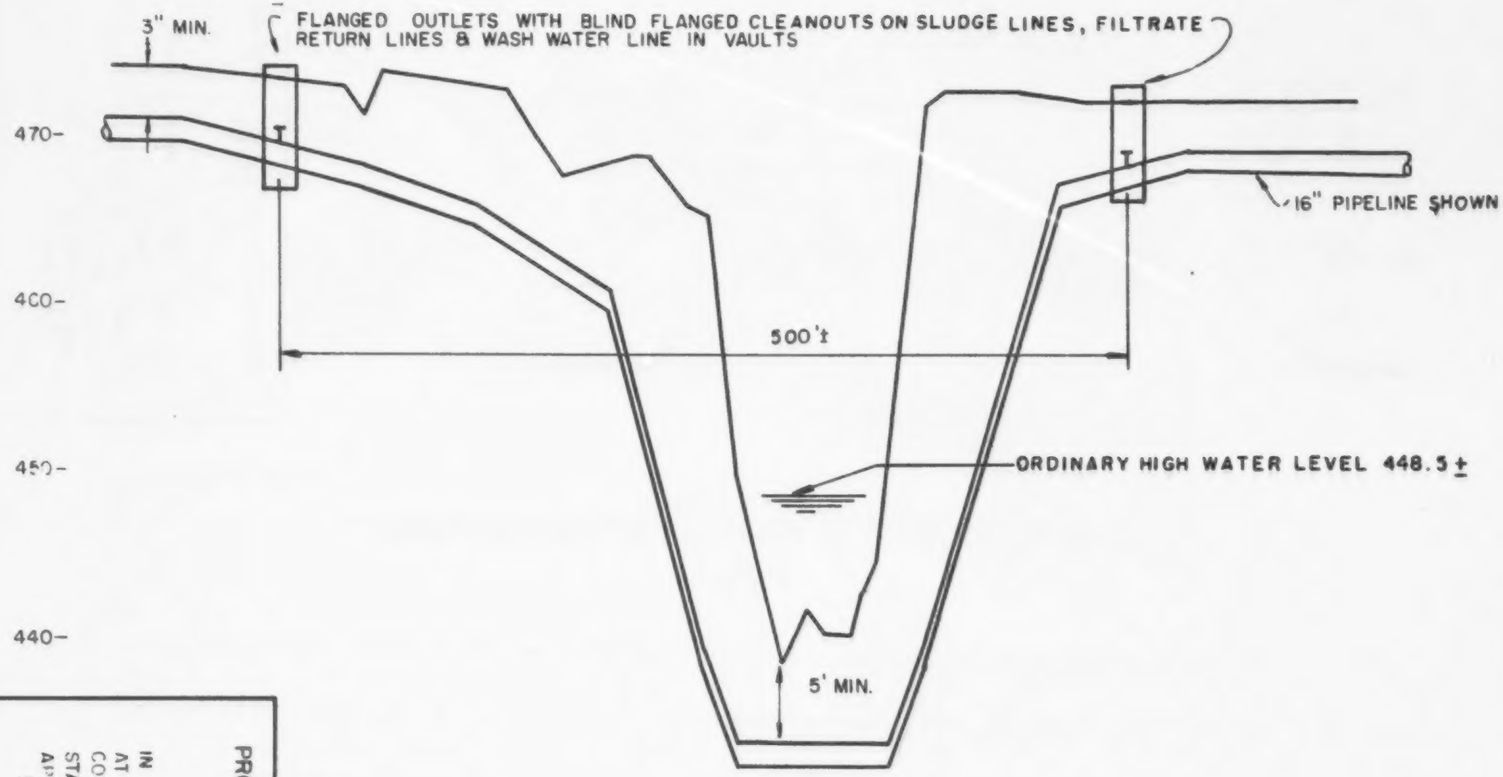
SECTION "A"-"A"

SCALE 1" = 10'

PROPOSED PIPELINE CROSSINGS
OF RIVER

IN WEST FORK OF TRINITY RIVER
AT FORT WORTH, TEXAS
COUNTY OF TARRANT
STATE OF TEXAS
APPLICATION BY CITY OF
FORT WORTH

FIGURE 6 OF 7 DATE 12-15-83


3" MIN.
FLANGED OUTLETS WITH BLIND FLANGED CLEANOUTS ON SLUDGE LINES, FILTRATE RETURN LINES & WASH WATER LINE IN VAULTS
470-
460-
450-
440-
430-
500'±
16" PIPELINE SHOWN
ORDINARY HIGH WATER LEVEL 448.5±
5' MIN.

PROFILE

PROPOSED PIPELINE CROSSINGS OF THE TRINITY RIVER

SCALE: 1" = 100' HORZ.
1" = 10' VERT.

PROPOSED PIPELINE CROSSINGS
OF RIVER

IN WEST FORK OF TRINITY RIVER
AT FORT WORTH, TEXAS
COUNTY OF TARRANT
STATE OF TEXAS
APPLICATION BY CITY OF
FORT WORTH

FIGURE 7 OF 7 DATE 12-15-83

ITEM 7 - NAMES, ADDRESSES AND TELEPHONE NUMBERS OF ADJOINING PROPERTY OWNERS

Perry R. Bass
c/o Kirkwood & Darby, Inc.
200 West 7th Street
Fort Worth, Texas 76102
817/335-4308

O. H. Calloway
5651 Hasen
Houston, Texas 77081
713/674-4352

Catherine Calloway
5651 Hasen
Houston, Texas 77081
713/674-4352

Gravel Mining Co.
Texas Industries
c/o Webb Cooley & Co.
3131 Turtle Creek
Dallas, Texas 75219
214/528-7270

Jack N. Greenman & Elise S. Greenman
6000 Western Plaza
Suite 415
Fort Worth, Texas 76107
817/738-9522

W. O. Ferguson, Trustee
815 Trailwood Drive
Hurst, Texas 76053
817/268-0561

J. E. Morrow, Et. Al.
366 Linkwood Drive
Duncanville, Texas 75137
214/296-4478

ITEM 12 - OTHER FEDERAL, STATE AND LOCAL AGENCIES

Part A of the Landfill Permit Application has been submitted to the Texas Department of Health, Austin, Texas for a Class VI landfill permit. A levee permit will be requested from the City of Fort Worth, the responsible authority. The City of Fort Worth has the authority to issue levee permits for construction within their own city limits. Upon approval, the permit will be forwarded to the Texas Department of Water Resources in Austin, Texas. In addition, the City of Fort Worth has requested for approval by the Federal Emergency Management Agency (FEMA) on the conceptual plan and Hydrologic Study of the proposed landfill. The agency has reviewed the concept plan and has sent the city a letter of approval. A copy of their reply is attached as Exhibit A, Item 12, for your information.

This project is in accordance with a Facility Plan prepared under Section 201 of the Federal Clean Water Act. In addition, to address environmental concerns about the project, a U.S. Environmental Protection Agency Environmental Impact Statement (EIS) was prepared in concert with the Facility Plan.

The draft of each document has been submitted to appropriate agencies for review with approval expected in early 1984. As a part of the planning process, several public meetings were conducted and a public hearing was held in August 1983. Public comments will be included in the approved EIS.

Item 12

Federal Emergency Management Agency
Washington, D.C. 20472

November 7, 1983

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Honorable Bob Bolen
Mayor of the City of Fort Worth
1000 Throckmorton Drive
Fort Worth, Texas 76102

Dear Mayor Bolen:

This is in reference to a letter submitted by Mr. Gary L. Santerre, P.E., Director of Transportation and Public Works for Fort Worth, Texas, dated July 7, 1983, forwarded to us by our Region VI office. In his letter, Mr. Santerre requested that the Federal Emergency Management Agency (FEMA) approve proposed construction within the floodway of the West Fork of the Trinity River just north of the Village Creek Wastewater Treatment Plant. The proposed project involves the construction of a sludge dewatering facility and sludge landfill to be surrounded by earthen levees. A flood relief channel will be excavated in the flood plain adjacent to the landfill to help mitigate the rise in water-surface elevations which would occur due to the landfill. In addition to the flood relief channel, the northeast corner of an existing sludge drying bed will be removed to help convey floodwaters through that area without causing a rise in water-surface elevations.

In order for any construction to take place inside the floodway boundary, the effective floodway configuration must be revised to exclude the area of new construction. This requires a revision of the effective Flood Insurance Study (FIS) for Fort Worth. Since the aforementioned project is not yet complete, a physical map revision cannot be performed at this time. FEMA will, however, review and critique the proposed project to ensure compliance with applicable National Flood Insurance Program (NFIP) regulations.

We have reviewed the plans and HEC-2 model of the proposed construction submitted by Camp Dresser & McKee in their report entitled, "Village Creek Landfill Hydrologic Study," dated June 14, 1983. Based upon our review of that study, we believe that the 100-year flood elevations developed by the Corps of Engineers for existing and encroached conditions will not increase as a result of the proposed construction and alternate floodway configuration.

After completion of the proposed modifications, the community may request a revision of the Fort Worth FIS. At that time, the following information will be required:

1. "As-built" plans of the completed project certified by a registered professional engineer.

2. Evidence indicating the community's agreement to maintain the levees in the form of an ordinance which specifies the maintenance activities to be performed, the frequency of their performance, and the community official(s) responsible for their performance. If the detail or complexity of such maintenance activities precludes their incorporation in an ordinance, the ordinance should reference a maintenance plan document which contains such details.

Upon receipt and review of items 1 and 2 above, FEMA will prepare and issue a set of preliminary maps incorporating the effects of the completed project. An appropriate period for community review will then be provided.

Should you have any questions concerning these requirements or procedures, please do not hesitate to contact Mr. R. Dell Greer, Chief, Natural and Technological Hazards Division of the Federal Emergency Management Agency in Denton, Texas, at (817) 387-5811 or members of our central office staff in Washington, D. C., at (202) 287-0230.

Sincerely,

Brian R. Mrazik, Ph.D.
Chief, Engineering Branch
Natural Hazards Division

cc: Mr. Gary L. Santerre, P.E., Director, Transportation and Public Works
Mr. Eric Schweizer, P.E., Camp Dresser & McKee, Inc.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Ecological Services
9A33 Fritz Lanham Building
819 Taylor Street
Fort Worth, Texas 76102

February 24, 1984

Mr. James W. Scanlan
Asst. Director, Administration
Fort Worth Water Dept.
P.O. Box 870
Fort Worth, Texas 76101

Dear Mr. Scanlan:

On January 23, 1984, a representative of my staff met with you, the City's consultants and a representative of the Environmental Protection Agency to verify current construction, operation, and mitigation alternatives for the proposed expansion at the Village Creek Wastewater Treatment Facilities. Since September 1983, there have been several meetings to resolve the issues related to providing mitigation for fish and wildlife resources associated with the proposed project.

Based upon information currently available to us, the most significant impacts will occur to riparian and floodplain woodlands during construction of the flood relief channel. This aspect of the project, depending upon final configuration, will impact between 75 and 100 acres of second growth riparian forest associated with abandoned gravel pits and riparian forest adjacent to the Trinity River. Construction and operation of the sludge landfill will directly impact approximately 200 acres of native grass and herbland.

Our understanding at present is that the City of Fort Worth is willing to set aside approximately 40-45 acres of woodlands immediately south of the flood relief channel and north of the Trinity River for wildlife preservation purposes. The area will undergo only low intensity management during the 20-year life of the project. The area will be open to organized groups and two local universities for educational purposes.

The City of Fort Worth has agreed to incorporate other features beneficial to wildlife into the project. These features include the provision of wildlife plantings and the maintenance of deeper pools within the flood relief channel. The plantings and maintenance will be based upon information provided by the Soil Conservation Service (SCS) in their letter of November 29, 1983, and supplemented by our letter of

December 2, 1983. The plan also provides for the maintenance of a buffer zone between the Trinity River and the beneficial sludge reuse experimental area. This zone will include the existing riparian woods plus an additional 20-foot strip of native grasses.

The current plan includes a reduction in size of the existing sludge dewatering area to increase flood water conveyance. The City has agreed to grade the area which will be removed from the dewatering area in a manner that will result in the expansion of an existing wetland by approximately 10 to 15 acres. Initial stabilization and eventual conversion to wetland will be accomplished by guidance provided in the referenced SCS and Fish and Wildlife Service (FWS) letters.

Until our January 23rd meeting, we had reservations regarding the time period that the City was willing to set aside the block of woods. Initially, we believed the area should be set aside for a longer period than the 20-year life of the project in order to provide adequate mitigation of the project impacts. During that meeting, however, it was noted that the habitat was afforded immediate protection when an option to purchase the tract was secured by the City more than a year ago. Since the life-of-the-project will not begin for at least one more year, preservation of the bottomland hardwoods will cover a minimum of 22 years. In addition, our preliminary analysis assumed the proposed mitigation lands would not be threatened for a minimum of ten years without the project. It was brought to our attention that parts of the mitigation land were being mined for topsoil at the time the City secured the option. Since there was a more immediate threat to the habitat than we had first assumed, the preservation of the habitat can be given more credit. For this reason, we now believe that preservation of the woodlands for the life-of-the project, or a minimum of 20 years, will be adequate to mitigate losses associated with the Village Creek Wastewater Treatment Facilities expansion.

At the most recent meeting, we recommended the City consider providing nest boxes for wood ducks adjacent to gravel pits which will not be disturbed by the project. The City's consultants obtained literature citations from us during the meeting concerning types of structures and proper placement for wood duck use. We continue to believe that this is a viable management plan, and we recommend that the City incorporate wood duck management into the mitigation area. The most feasible approach would be to provide only a few nest boxes initially. Additional boxes could be added as usage patterns develop. We believe it would be to the City's advantage to make use of the staff of the Fort

Worth Nature Center and local universities to monitor wildlife population trends within the mitigation area. We would also be pleased to provide additional guidance on this project.

We believe that adequate preservation of fish and wildlife resources will be accomplished for this project if the City provides the mitigative measures discussed within this letter. Please respond if our understanding of the mitigation measures that the City will provide is in error.

If you have questions or need additional information, please call Bill Colbert at 334-2961.

Sincerely yours,

Jerome L. Johnson

Jerome L. Johnson
Field Supervisor

cc:
Presley Hatcher, Environmental Protection Agency, Dallas, TX
Robert F. Pence, Freese & Nichols, Brown & Caldwell, Consulting Engineers, Fort Worth, TX
Brooks Carter, U.S. Army Corps of Engineers, Fort Worth, TX
Humberto Hernandez, Soil Conservation Service, Fort Worth, TX
Regional Director, FWS, Albuquerque, NM (AHR)

Scanlan

FORT WORTH WATER DEPARTMENT
P.O. BOX 870 1000 THROCKMORTON
FORT WORTH, TEXAS 76101

ADMINISTRATION DIVISION
(817) 870-8220

March 2, 1984

Mr. Jerome L. Johnson
Field Supervisor
Ecological Services
U. S. Department of the Interior
Fish and Wildlife Service
9A33 Fritz Lanham Building
819 Taylor Street
Fort Worth, Texas 76102

Dear Mr. Johnson:

This letter is in reference to your letter dated February 24, 1984, concerning the mitigation plan for the Village Creek Wastewater Treatment Plant sludge landfill and dewatering facilities project. Your basic understanding of the proposed mitigation measures is accurate although some clarafication is provided below. The proposed plan will be implemented after approval of the project by the appropriate regulatory agencies.

The sludge landfill construction and operation will impact approximately 134 acres rather than 200 acres as indicated in your letter. Construction of the adjacent flood relief channel will impact from 75 to 100 acres. The flood relief channel, once completed and seeded, will be available for wildlife habitat. Only limited maintenance is anticipated in the channel.

An area of approximately 20-30 acres is to be set aside by the City for wildlife preservation purposes. This area is along the river banks and Area "G" as shown on Figure 1 of 7 of the Corps of Engineers 404 Section 10 permit application. Area "F", which is immediately south of the flood relief channel, may be partially disturbed during construction, but will be revegetated. The City has no immediate plans to use Areas "F" and "G", and they will be open to organized groups and local universities for educational purposes.

Within the flood relief channel, the deeper pools will be maintained where practical. As discussed in a prior meeting with your staff representatives, there may be some pools that will be filled or partially filled in order to properly grade the piles of spoil material.

We appreciate your response to our proposed plan and will keep you advised of the status of this project.

Sincerely,

Richard W. Sawey
Director

RWS:JWS:hl

cc: Mr. Presley Hatcher, EPA, Dallas, Texas
Mr. Robert F. Pence, BCFN
Mr. Brooks Carter, U. S. Army Corps of Engineers
Mr. Humberto Hernandez, Soil Conservation Service

Section 404(b)(1) Evaluation

I. Alternatives:

An in-depth discussion of alternatives is presented in Chapter 4 of the Environmental Impact Statement. The sludge landfill included in the preferred alternative does not appear to have the least impact on the aquatic environment nor is its location in a special aquatic site necessary to fulfill its basic purpose. However, all practicable alternatives will involve significant adverse environmental consequences. The city wants to locate the sludge landfill away from nearby neighborhoods. Any landfill site near the plant, but not proximal to urban housing, will involve discharges into wetlands.

II. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem:

Levee construction will occur in three small wetland sites which are intermittently saturated or inundated. Immobile organisms at these sites will be smothered and the levees will remain in place indefinitely. The portions of the wetlands not covered by the levee will be incorporated in the landfill. Nearby aquatic areas should not be affected by erosion from the landfill since the levees will have 3h:1v side slopes stabilized with bermuda grass. Construction of the flood relief channel will involve dredging some of the flooded gravel pits. This will result in the disturbance of some aquatic substrate and an increase in turbidity. Following construction, the substrate will be very similar to preexisting conditions and this excess turbidity will dissipate. During flood flows, the area just east of the downstream limits of the flood relief channel will be subject to impact flows which may cause minor turbulence and erosive action.

The pipeline crossing of the West Fork of the Trinity River will take place in an area where testing has shown that the bottom sediments contain levels of cadmium, lead, zinc, and total nitrogen higher than the guidelines for dredged sediment disposal proposed by the Environmental Protection Agency (Region VI). The trench will be dredged under wet conditions which will cause a short term increase in turbidity. The substrate will be destroyed during construction and replaced with a granular material. The material will lack clay and silt, but these fine particles will eventually be replaced by sedimentation, and the river bottom substrate will be much the same as it was before construction. During normal flows, there should be no effect on water fluctuation and only minor effects on current patterns during construction.

III. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem:

a. Threatened and Endangered Species. The project is located within the migratory route of the whooping crane (*Grus americana*). This species is not known to use this location as a resting area during migration.

b. Aquatic Organisms. The aquatic habitat in the area will experience increased turbidity from the previously named construction activities. The river is normally turbid and organisms occurring there are adapted to it. Following construction, turbidity will return to ambient levels. Dredging in the river will cause a release of heavy metals and nitrogen contained in the sediment adding pollutants to the already contaminated water. This will have only a small impact on the present aquatic organisms at and downstream of the project. Following construction, levels of contaminants will return to the ambient range and aquatic life should return to preconstruction population levels. Additionally, increased flows from the plant and increased dissolved oxygen levels in the stream due to better quality effluent may allow a more healthy and diverse aquatic community. The high concentrations of heavy metals and nitrogen currently present in the sediment are due primarily to the effluent discharges from the Village Creek Wastewater Treatment Facility. The increase in effluent to the river from the enlarged plant will place a greater total load of heavy metals and other pollutants into the system. This may limit the potential improvement of the aquatic community based on higher oxygen and lower suspended solids levels in the river. These pollutants will settle out possibly increasing the total pollution content of the sediment and biomagnification of the pollutants into the aquatic food chain. Nonmobile species in the immediate area of construction will be killed but should repopulate.

c. Wildlife. Wildlife will be driven away from much of the 500-acre site during construction but should return upon completion. The flood relief channel should provide more open water and in many areas a more gradual slope to the water. This bermuda covered smooth surface will provide less cover, however, and will reduce the value of the area for wildlife. The applicant has proposed to plant annuals with food value to wildlife where practical. Reconstruction of a bridge across the Trinity River at the same location as the pipeline crossing is scheduled to take place before this project is complete and will have much more impact on the wildlife on a permanent basis than the pipeline. The area to be used for the sludge landfill is currently an uncultivated field utilized by song birds, small mammals, reptiles, and various raptors. This 134-acre site will not be useable by these animals for the 20-year life of the landfill but some use may be possible after that time. A large area south of the flood relief channel containing some areas of unmined bottomland hardwoods is being set aside by the city as a wildlife study area to be used by local universities for the life of the sludge landfill. The city has also donated the 83 acres at the Riverside Wastewater Treatment Plant to its Parks and Recreation Department for development of a park which will maintain some wildlife habitat. Additionally, the city has proposed to manage a beneficial sludge reuse demonstration area just south of the pipeline river crossing and has also planned to leave a strip of riparian habitat along the river untouched.

IV. Potential Impacts on Special Aquatic Sites:

There will be no impacts on sanctuaries or refuges, mud flats, vegetated shallows, or riffle and pool complexes. Three acres of intermittently inundated wetlands will be destroyed by the landfill. These areas have minimal value for productivity, flood storage, and water purification. The city will replace lost flood storage due to the project with construction of the flood relief channel. The city has also proposed to create a low area in the floodplain where they are removing a section of the sludge drying beds involving approximately 39 acres which will pond water and may support wetland vegetation.

V. Potential Effects on Human Use Characteristics:

The water in the Trinity River from the plant site to a location approximately 80 miles downstream has been ranked as some of the most critical in the state and is classified by the Texas Department of Water Resources (TDWR) as "water quality limited." Designated water uses set by TDWR include irrigation and industrial supply; but do not include contact recreation, propagation of fish and wildlife, and domestic raw water supply. The increase in capacity of the plant from 96 mgd to 137 mgd will possibly contribute to higher levels of heavy metals in the sediment and higher levels of oxygen in the water of the Trinity River.

a. Municipal and Private Water Supplies. There are no public water supply intakes for a distance of over 250 miles downstream (where Huntsville has a pump station) and there are no known private water supply intakes on that section of the river. There should be only minor impacts on water supplies in the Lake Livingston area.

b. Recreational and Commercial Fisheries. There is no known commercial fishing to be affected by the project and there is little recreational fishing. Most fishing in the project area takes place in upstream lakes. Therefore, there will be little impact on fishing.

c. Water Related Recreation. As mentioned above, contact recreation is not a designated use of the water downstream of the project. This status will not be changed because of the project and recreation such as boating will not be impacted.

d. Aesthetics. A natural field will be covered by a 134-acre sludge landfill. The work in the landfill and associated equipment will not be visible except by some hillside residents of Arlington due to a 14-foot levee surrounding the site. The natural river bank will be cut in the area of the flood relief channel and rock riprap will cover a 1,000-foot length of the bank from the water surface to top of the bank. Some of the very steep overburden piles remaining from old gravel mining operations will be leveled. Some of the flattened areas will normally be above water and will be grassed. Others will be cut to below the water level of the gravel pits (i.e., islands in the flooded gravel pits will disappear leaving more open water). In general, the area of the flood relief channel will take on a more groomed appearance. The aesthetics of the remainder of the 500-acre site will be constant throughout the life of the landfill. The odors produced by the sludge drying beds will be greatly reduced since the beds will be used only during emergency situations. Odors produced by the sludge landfill should be less than those produced by the drying beds. This, in combination with other measures and improvements to the treatment system, should reduce the overall odor produced by the plant.

e. Parks and Preserves. Public parks have been proposed within the cities of Dallas and Fort Worth along the Trinity River but none currently exist in the project area.

VI. Evaluation and Testing:

The sediments in the river have been shown by previous studies to contain high levels of heavy metals and nitrogen. The contaminated sediments dredged to install the pipeline will be disposed of inside the sludge landfill and a clean granular material will be used to backfill the pipeline crossing.

VII. Actions to Minimize Adverse Effects:

The applicant's proposal contains a prudent construction design to minimize adverse effects. This will include gentle slopes on levees, revegetation of bare soil, the use of riprap to stabilize areas with high erosion potential, the use of clean material for backfill in the river instead of polluted bottom sediments, planting vegetation beneficial to wildlife, and leaving most of the bottomland hardwoods undisturbed at the site.

VIII. Findings:

This proposed project is in compliance with the Section 404(b)(1) guidelines.

APPENDIX E

FLOODPLAIN/WETLAND CONSTRUCTION NOTICE AND STATEMENT OF FINDINGS

The following notice is prepared in compliance with Executive Order 11988 - Floodplain Management (May 24, 1977) and Executive Order 11990 - Protection of Wetlands (May 24, 1977).

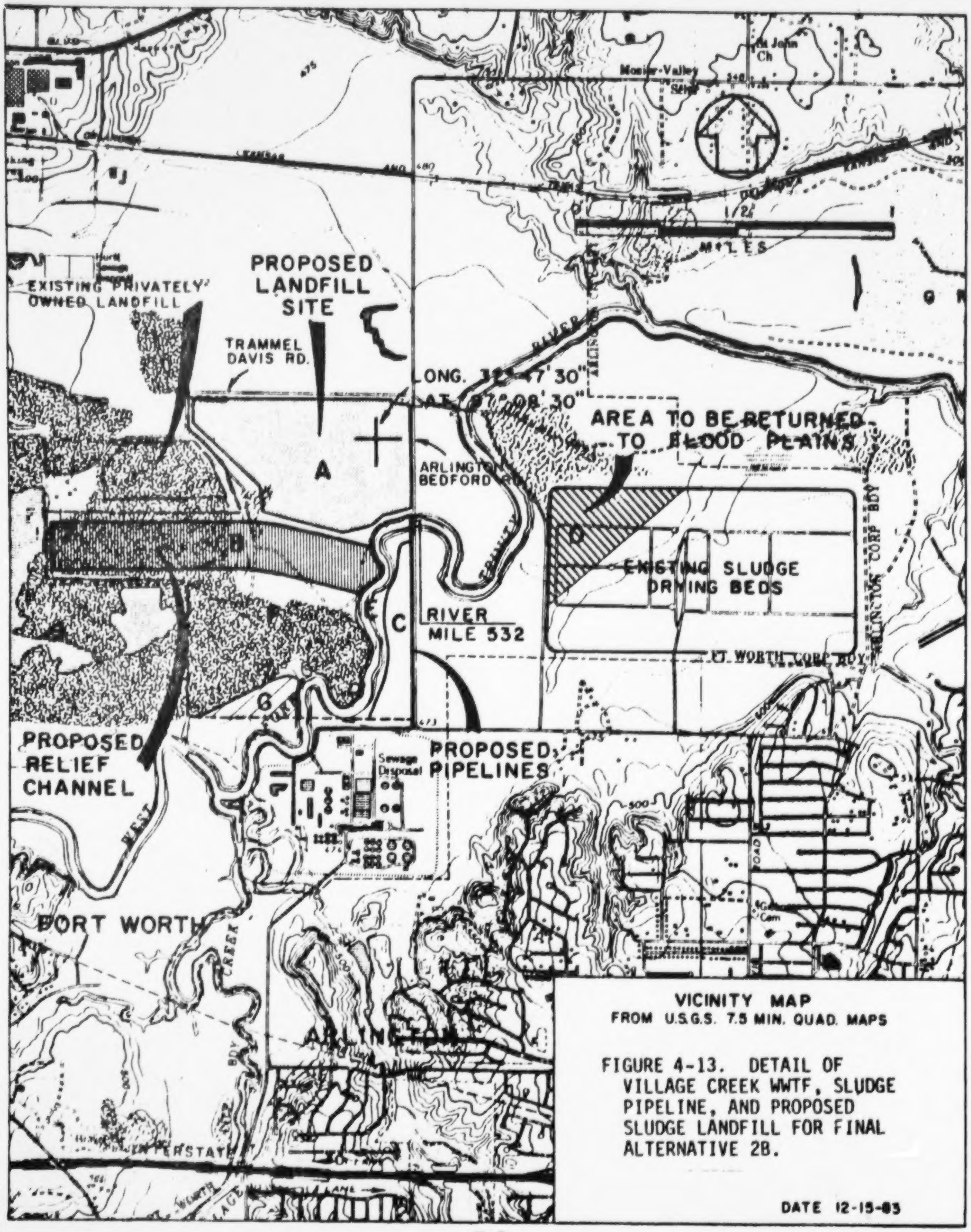
The City of Fort Worth, Texas proposes to construct sludge disposal facilities including a sludge-only landfill in the 100-year floodplain of the Trinity River. The action proposed by the City would also destroy approximately 2½ acres of 404 wetlands. The proposed action is described and evaluated in the Draft and Final Environmental Impact Statements for the Fort Worth Wastewater Treatment Facilities Plan, and is illustrated on the attached map.

The City of Fort Worth proposes the above action because: (1) other practicable alternatives could not be found at the present time; (2) location of the sludge facilities adjacent to the liquid treatment facilities will allow for more efficient operation of the facilities overall along with a minimization of areas affected by wastewater treatment and associated activities; (3) the construction and operation of the sludge disposal facilities can be undertaken in a manner which will have no adverse effect on the floodplain and minimal adverse effect on wetlands; (4) construction in the floodplain would conform to applicable Federal, state, and local floodplain protection requirements; (5) activities in the floodplain will not serve to encourage other development in the floodplain; and (6) the City of Fort Worth intends to pursue other possibilities for sludge disposal in the future to avoid any additional use of the floodplain.

The City of Fort Worth evaluated numerous alternatives for sludge disposal including: (1) bagging and marketing as fertilizer; (2) agricultural land spreading; (3) give-away for private citizen use; (4) dedicated land disposal; (5) landfilling; and (6) lagooning. Locations evaluated for sludge disposal included an area north of Saginaw, principally within Tarrant County, and an area in northern Johnson County. With the exception of the Trinity River floodplain site proposed by the City, no other potential sludge disposal areas could be located within a reasonable distance from the Village Creek WWTF.

The City of Fort Worth plans to design the proposed sludge disposal facilities to minimize and/or mitigate potential harm to or within the floodplain or wetlands. To prevent a rise in 100-year flood elevations due to the levees which would be constructed to protect the facilities, the City would construct a flood relief channel and remove a portion of the present levee which surrounds the sludge drying beds on the south side of the Trinity River. These improvements will ensure that the 100-year flood elevation is not raised and that excessive velocities are not created during flooding. The Federal Emergency Management Agency (FEMA) has reviewed the project and accepted the conclusion that flood elevations would not be increased. The Flood Insurance Study for Fort Worth would be revised at the appropriate time as required by National Flood Insurance Program regulations.

Impacts to wetlands and other wildlife habitat would be minimized and/or mitigated through implementation of provisions of a fish and wildlife mitigation plan developed by the City of Fort Worth. Provisions of the plan include: (1) development of a wildlife study area for area universities in wooded areas which would be undisturbed by construction--the area would be protected for the 20-year life of the proposed project; (2) efforts to minimize disturbance of areas adjacent to construction; (3) revegetation of areas with species beneficial to wildlife where possible; (4) regrading the area along the relocated sludge drying bed levee with little or no slope to enhance the potential for wetland development; (5) preserving deeper pools as much as possible within the flood relief channel; (6) revegetation of areas prone to erosion with bermuda grass to reduce sedimentation in productive areas; and (7) providing a buffer strip of forest and grassland between the river and the beneficial reuse area.


PROPOSED LANDFILL SITE
EXISTING PRIVATELY OWNED LANDFILL
TRAMMEL DAVIS RD.
LONG. 32°47'30"
LAT. 97°08'30"
AREA TO BE RETURNED TO FLOOD PLAINS
A
B
C
D
E
G
ARLINGTON BEDFORD RD.
EXISTING SLUDGE DRYING BEDS
RIVER MILE 532
FT WORTH CORP BDY
ARLINGTON CORP BDY
TRINITY RIVER
WEST
CREEK
Sewage Disposal
PROPOSED PIPELINES
PROPOSED RELIEF CHANNEL
FORT WORTH
ARLINGTON
INTERSTATE
Mosier Valley Sch
St John Ch
1/2
1
MILES

VICINITY MAP
FROM U.S.G.S. 7.5 MIN. QUAD. MAPS

FIGURE 4-13. DETAIL OF VILLAGE CREEK WWTF, SLUDGE PIPELINE, AND PROPOSED SLUDGE LANDFILL FOR FINAL ALTERNATIVE 2B.

DATE 12-15-83

APPENDIX F

NPDES PERMIT

APPENDIX F

Permit No. TX0047295

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, (33 U.S.C. 1251 et. seq; the "Act"),

City of Fort Worth
1000 Throckmorton Street
Fort Worth, Texas 76102

is authorized to discharge from a facility located at approximately

Latitude: 32 degrees, 45 minutes, 00 seconds
Longitude: 97 degrees, 16 minutes, 30 seconds

to receiving waters West Fork Trinity River

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, III, and IV hereof.

This permit shall become effective on December 26, 1983

This permit and the authorization to discharge shall expire at midnight, December 25, 1986

Signed this 25th day of November 1983

Myron O. Knudson

Myron O. Knudson, P.E.
Director, Water Management Division (6W)

PART I

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Final Effluent Limits
During the period beginning date of issuance and lasting through date of expiration the permittee is authorized to discharge from outfall serial number 001

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		
	kg/day(lbs/day)	Other Units (Specify)	
	30-day Avg	30-day Avg	7-day Avg
Flow*		*mgd	*mgd
Biochemical Oxygen Demand (5-day)	3636(8000)	10 mg/l	15 mg/l
Total Suspended Solids	5455(12000)	15 mg/l	25 mg/l

Effluent Characteristic	Monitoring Requirements	
	Measurement Frequency	Sample Type
Flow*	Daily	Totalizing Meter
Biochemical Oxygen Demand (5-day)	Daily	12-hr. composite
Total Suspended Solids	Daily	12-hr. composite

* Flow must be monitored and reported.

The effluent shall contain a chlorine residual of at least 1.0 mg/l after a detention time of at least 20 minutes (based on peak flows), with a measurement frequency as that of BOD and TSS.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored by grab samples collected at the frequency shown above for Total Suspended Solids.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the discharge from the final treatment unit.

SECTION B. MONITORING AND REPORTING

1. The permittee shall effectively monitor the operation and efficiency of all treatment and control facilities and the quantity and quality of the treated discharge. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

a. If any seven-day average value exceeds the effluent limitations specified in Part I. A., the permittee shall report the excursion in accordance with the requirements of Part II. A.2.

b. Any 30-day or 7-day average reported in the required Discharge Monitoring Report which is in excess of the effluent limitation specified in Part I. A. shall constitute evidence of violation of such effluent limitation and of this permit.

c. The Regional Administrator may at his discretion require additional sampling, reporting, or monitoring including but not limited to the taking of at least one 12 hour composite sample and/or increased frequency of sampling.

d. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

2. Reporting

a. All reporting (including written notifications, oral notifications, and discharge monitoring reports) required by this permit shall, unless otherwise specified, be made to:

(1) Director
Water Management Division (6W)
Region VI
InterFirst Two Building
1201 Elm Street
Dallas, Texas 75270

b. Monitoring information required shall be submitted on Discharge Monitoring Report Form EPA 3320-1.

(1) Duplicate original Discharge Monitoring Report forms, properly completed and signed (as per paragraph [2] below), must be submitted monthly.

(2) Each submitted Discharge Monitoring Report shall be signed by a duly authorized agent of the permittee in accordance with Part II. B.13.

(3) Reporting periods shall end on the last day of the month.

(4) The first Discharge Monitoring Report(s) shall represent facility operations from the effective date of the permit through the last day of the month.

(5) Thereafter, the permittee is required to make regular monthly reports as described above and shall submit those reports no later than the 25th day of the month following each reporting period.

(6) All values required on EPA Form 3320-1 shall be reported in accordance with the "General Instructions" provided on that form.

(7) Other measurements of oxygen demand (e.g., TOC and COD) may be substituted for five-day Biochemical Oxygen Demand (BOD_5) where the permittee can demonstrate long-term correlation of the method with BOD_5 values. Details of correlation procedures employed must be submitted and prior approval granted by the permitting authority for this procedure to be acceptable. Data reported must also include evidence to show that the proper correlation continues to exist after approval.

c. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

3. Test Procedures

a. All sampling and analytical methods used to meet the monitoring requirements specified above shall conform to Section 304(h) of the Act and any regulations promulgated therefrom.

b. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals frequent enough to insure accuracy of measurements and shall insure that both calibration and maintenance activities will be conducted.

c. An adequate analytical quality control program, including the analyses of sufficient standards, spikes, and duplicate samples to insure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory.

d. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or both.

4. Recording

The permittee shall record for each measurement or sample taken pursuant to the requirements of this permit the following information:

a. the date, exact place and time of sampling;

b. the dates analyses were performed;

c. who performed the analyses;

d. the analytical techniques or methods used,

e. the results of all required analyses, and

f. the instantaneous flow at grab sample collections.

5. Additional Monitoring by Permittee

If the permittee monitors any parameters more frequently than is required by this permit, he shall include the results of such monitoring in the calculation and reporting of the values required in the Discharge Monitoring Report (EPA Form 3320-1 [10-77]). Such increased frequency shall be indicated on the Discharge Monitoring Report form.

6. Records Retention

The permittee shall retain records of all monitoring information and records of all data used to complete the application for this permit for a period of at least three years from the date of the sample, measurement, report, or application. This period may be extended by request of the Regional Administrator at any time.

Records of monitoring information shall conform to the requirements of 40 CFR 122.7(j).

SECTION A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

a. The permittee shall give advance notice of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

b. Any change in the facility discharge (including the introduction of any new source or significant discharge or significant changes in the quantity or quality of existing discharges to the treatment system that may result in new or increased discharges of pollutants) must be reported to the permitting authority. In no case are any new connections, increased flows, or significant changes in influent quality permitted that will cause violation of the effluent limitations specified herein.

2. Noncompliance Notification

a. The permittee shall report all instances of noncompliance not reported under Part II, 2.b. below at the time monitoring reports are submitted. The reports shall contain the following information:

(1) A description of the noncompliance and its cause;

(2) The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and

(3) Steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

b. The following must be reported within 24 hours:

(1) Any unanticipated bypass which exceeds any effluent limitation in the permit;

(2) Any upset which exceeds any effluent limitations in the permit; and

(3) Violation of a maximum daily discharge limitation for any toxic pollutant or hazardous substance listed under Part III, A. to be reported within 24 hours.

Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain the information listed in Part II, A.2.a. above.

The Regional Administrator may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

The permittee shall also report any other noncompliance which may endanger health or the environment (such as fish kills or other instances when timely reporting is desirable) in this manner.

3. Bypassing

Bypass or diversion of wastes from any portions of the treatment facilities is prohibited unless the following conditions are met:

a. Bypass is unavoidable to prevent loss of life, personal injury or severe property damage;

b. There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance;

c. The permittee submits notice of an unanticipated bypass as required in Part II, A.2.b.; and

d. The permittee submits prior notice of an anticipated bypass, if possible at least ten days before the date of the bypass.

4. Upsets

An upset constitutes an affirmative defense to an enforcement action brought for noncompliance with technology-based permit effluent limitations if the following requirements are met.

A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An upset occurred and that the permittee can identify the specific cause(s) of the upset;

b. The permitted facility was at the time being properly operated;

c. The permittee submitted notice of the upset as required in Part II, A.2.b. of this permit; and

d. The permittee complied with any remedial measures under Part II, B.2.

5. Duty to Reapply

Permittees who wish to continue to discharge subsequent to the expiration date of their permit must apply for reissuance of the permit using proper forms, not less than 180 days prior to the permit expiration date.

6. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the permittee shall submit a written agreement, at least 30 days in advance of the proposed transfer date, containing a specific date for transfer of permit responsibility and coverage between the current and new permittees.

7. Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report, it shall promptly submit such facts or information.

SECTION B. MANAGEMENT RESPONSIBILITIES

1. Duty to Comply

a. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the appropriate Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

b. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

c. The Act provides that any person who violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the

Act is subject to a civil penalty not to exceed $10,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing sections 301, 302, 306, 307, or 308 of the Act is subject to a fine of not less than $2,500 or more than $25,000 per day of violation, or by imprisonment for not more than one year, or both.

2. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

3. Duty to Halt or Reduce Activity

a. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permittee activity in order to maintain compliance with the conditions of this permit.

b. Upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility is reduced, is lost, or fails.

4. Permit Flexibility

a. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

b. After notice and opportunity for a hearing, this permit may be modified, suspended, or terminated during its term in accordance with 40 CFR 122.15-16.

5. Facility Operation and Quality Control

a. All waste collection, control, treatment and disposal facilities shall be operated in a manner consistent with the following:

(1) At all times, all facilities or systems of control shall be maintained in good working order and operated as efficiently as possible and in a manner which will minimize upsets and discharges of excessive pollutants;

(2) The permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance and testing functions required to insure compliance with the conditions of this permit;

(3) Maintenance of treatment facilities that results in degradation of effluent quality shall be scheduled during noncritical water quality periods and shall be carried out in a manner approved by the permitting authority, as specified in Part II, A.3.c.

b. To have access to, and to copy, at any reasonable time, any records required to be kept under the terms and conditions of this permit, or the Act.

6. Removed Substances

Collected screenings, slurries, sludges, and other solids shall be disposed of in such a manner as to prevent entry of those wastes (or runoff from the wastes) into navigable waters or their tributaries.

7. Power Failure

The permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures either by means of alternate power sources, standby generators, or retention of inadequately treated effluent.

8. Availability of Reports

Except for applications, effluent data, permits, and other data specified in 40 CFR 122.19, any information submitted pursuant to this permit may be claimed as confidential by the submitter. If no claim is made at the time of submission, information may be made available to the public without further notice.

9. Duty to Provide Information

The permittee shall furnish, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish, upon request, copies of records required to be kept by this permit.

10. State Laws

Nothing in this permit precludes more stringent State regulation of any activity covered by this permit.

11. Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

12. Right of Entry

The permittee shall allow the head of the State water pollution control agency, the Regional Administrator, and/or their authorized representatives, upon the presentation of credentials and such other documents as may be required by the law:

a. To enter upon the permittee's premises or other premises under the control of the permittee, where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit;

b. To have access to any copy at reasonable times and records required to be kept under the terms and conditions of this permit, or the Act;

c. To inspect at reasonable times any monitoring equipment or monitoring method required in this permit;

d. To sample at reasonable times any discharge of pollutants; or

e. To perform at reasonable times an operation and maintenance inspection of the permitted facility.

13. Signatory Authority

a. All permit applications shall be signed by a principal executive officer or ranking elected official. Discharge monitoring and other reports may be signed by an authorized representative provided that a written authorization has been submitted and that the representative so authorized is responsible for the overall operation of the facility from which the discharge originates.

b. A person signing any document shall make the following certification: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

14. Civil and Criminal Liability

Except as provided in permit conditions on "Bypassing" and "Upsets", nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

15. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

SECTION A. OTHER REQUIREMENTS

1. Contributing Industries and Pretreatment Requirements

a. The following pollutants may not be introduced into the treatment facility:

(1) Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW);

(2) Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0, unless the works are specifically designed to accomodate such discharges;

(3) Solid or viscous pollutants in amounts which will cause obstruction to the flow in sewers, or other interference with the operation of the POTW;

(4) Any pollutant, including oxygen demanding pollutants (e.g., BOD) released in a discharge of such volume or strength as to cause interference in the POTW;

(5) Heat in amounts which will inhibit biological activity in the POTW resulting in interference but in no case heat in such quantities that the temperature at the treatment works influent exceeds 40°C (104°F) unless the works are designed to accomodate such heat.

b. The permittee shall comply with the pretreatment requirements in 40 CFR 403, as specified in Part III.A.2.

c. Upon approval by the Regional Administrator of a local pretreatment program this permit will be modified, or, alternatively, revoked and reissued to incorporate that pretreatment program.

d. Any application for authority to revise categorical pretreatment standards to reflect POTW removal of pollutants in accordance with the requirements of 40 CFR 403.7 must be submitted to the permit-issuance authority at the time of application for POTW pretreatment program approval or at the time of permit expiration and reissuance thereafter.

e. The permittee shall require any indirect discharger to the treatment works to comply with the reporting requirements of sections 204(b), 307, and 308 of the Act, including any requirements established under 40 CFR Part 403.

f. The permittee shall provide adequate notice of the following:

(1) Any new introduction of pollutants into the treatment works from an indirect discharger which would be subject to sections 301 or 306 of the Act if it were directly discharging those pollutants; and

(2) Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of the permit.

Adequate notice shall include information on (i) the quality and quantity of effluent to be introduced into the treatment works, and, (ii) any anticipated impact of such change in the quantity or quality of effluent to be discharged from the publicly owned treatment works.

2. Submit an approvable local pretreatment program as required by 40 CFR 403 within 60 days of the effective date of this permit.

SECTION A. DEFINITIONS

All definitions contained in Section 502 of the Act shall apply to this permit and are incorporated herein by reference. Additional definitions of words or phrases used in this permit are as follows:

1. "Act" means the Clean Water Act, Public Law 95-217 (33 U.S.C. 1251 et seq).

2. "Administrator" means the Administrator of the U.S. Environmental Protection Agency.

3. "Applicable effluent standards and limitations" means all State and Federal effluent standards and limitations to which a discharge is subject under the Act, including, but not limited to, effluent limitations, standards of performance, toxic effluent standards and prohibitions, and pretreatment standards.

4. "Applicable water quality standards" means all water quality standards to which a discharge is subject under the Act and which have been (a) approved or permitted to remain in effect by the Administrator following submission to her pursuant to section 303(a) of the Act, or (b) promulgated by the Administrator pursuant to section 303(b) or 203(c) of the Act.

5. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

6. "Environmental Protection Agency" means the U.S. Environmental Protection Agency.

7. "Grab sample" means an individual sample collected in less than 15 minutes.

8. "Industrial User" means a nondomestic discharger, as identified in 40 CFR 403, introducing pollutants to a publicly owned treatment works.

9. "National Pollutant Discharge Elimination System" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Clean Water Act.

10. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

11. "Sewage sludge" means the solids, residues, and precipitate separated from or created in sewage by the unit processes of a publicly owned treatment works. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff, that are discharged to or otherwise enter a publicly owned treatment works.

12. "7-day average", other than for fecal coliform bacteria, is the arithmetic mean of the values for all effluent samples collected during the calendar week. The 7-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during the calendar week.

13. "30-day average", other than for fecal coliform bacteria, is the arithmetic mean of the values for all effluent samples collected during a calendar month. The 30-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar month.

14. "12-hour composite sample" consists of 12 effluent portions collected no closer together than one hour and composited according to flow.

15. "6-hour composite sample" consists of six effluent portions collected not closer together than one hour (with the first portion collected no earlier than 10:00 A.M.) and composited according to flow.

16. "3-hour composite sample" consists of three effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 A.M.) and composited according to flow.

17. "Treatment works" means any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage and industrial wastes of a liquid nature to implement section 201 of the Act, or necessary to recycle or reuse water at the most economical cost over the estimated life of the works, including intercepting sewers, sewage collection systems, pumping, power and other equipment, and their appurtenances, extension, improvement, remodeling, additions, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities, and any works, including site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment.

18. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the

permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventive maintenance, or careless or improper operation.

19. For fecal coliform bacteria a sample consists of one effluent grab portion collected during a 24 hour period at peak loads.

APPENDIX G

EVALUATION OF PUBLIC PARTICIPATION PROGRAM

CARTER & BURGESS, INC. ENGINEERS • PLANNERS
1100 MACON ST. / P O BOX 2973 / FT. WORTH, TX. 76113 / (817) 335-2611

March 31, 1984

Water Department
City of Fort Worth
1000 Throckmorton Street
Fort Worth, Texas 76102

Attention: Jim Scanlan

Reference: City of Fort Worth
Waste Water System
- Citizen Advisory
Committee Evaluation

Dear Jim:

Based on a summary of opinions of questionnaires submitted by some committee members and by comments and observations of committee members, the following conclusions are submitted.

1. There was adequate opportunity for public participation. Ample notices, letters, announcements, distribution of data and news releases were made.

2. Adequate information was made available in meetings, by mail, and by distribution to libraries, etc. So much, in fact, that it was difficult for lay persons to absorb. All items were thoroughly discussed and presented in an unbiased manner.

3. All viewpoints were adequately considered. Responses and objections to various solutions were voiced, mostly by those affected economically, or in the case of citizens of Arlington, by concern of the proximity of the facility to them and the current undesirable odors.

4. All data was presented impartially, all questions were answered, and most recommendations voted on were made considering the economic impact of the areas served.

5. Probably the most critical comment was the length of time to review and process all the data and the long waiting period required of the system. So much so, that interest and enthusiasm of the Advisory Committee waned and attendance of committee members decreased as time passed.

The whole matter should have been wrapped up in a year.

Respectfully submitted,

John J. Burgess

John J. Burgess, Sr.
Chairman
Citizens Advisory Committee

JJB/dac

APPENDIX H

ASSORTED SIGNIFICANT CORRESPONDENCE

Cof OC 2/28/80

INTER-OFFICE CORRESPONDENCE

Copy to Cecil & Bob

TO Mr. Stephen Ondrejas, Planning Director

DATE February 27, 1980

FROM W.R. Hardy, Special Assistant to the City Manager

TIME

SUBJECT Land Planning in the Vicinity of the Village Creek Treatment Plant

The map prepared by the Planning Department which shows the current preliminary plan for the areas within the cities of Fort Worth and Arlington in the vicinity of the Village Creek Wastewater Treatment Plant has been received. I appreciate very much the work done by Mr. Darrell Noe and his staff in the preparation of this map. The map shows that existing planning for land located in the City of Fort Worth provides for low-density housing situated within approximately one-half mile of the treatment plant property and that low-density housing is proposed for the future which is situated within approximately 1200 feet of the plant property.

The problem with odors at Village Creek Plant will not be controlled to the extent that odors will be completely non-existent. While it is entirely possible that additional large sums of money will be expended to construct more odor curtailing facilities at the treatment works, there is no assurance from any agency or consultants that whatever is built at the Village Creek Plant will eliminate odors 100 percent of the time. Should the area within Fort Worth be developed as contemplated by the present East Meadowbrook Sector Land Use Plan, citizens living in the area in the future would almost certainly be subjected occasionally to conditions that do not exist elsewhere in the City of Fort Worth. We are all knowledgeable of the criticism of the City of Arlington because it allowed residential construction near the treatment plant.

It appears to me that property owners, citizen groups, and the Planning and Zoning Commission members should be advised of the potential long-term problems associated with residential development in the close proximity of the large regional sewage treatment works which presently exists on the Village Creek Plant property.

Since I believe that the Planning Department is the proper City department to initiate good land planning compatible with anticipated environmental conditions in the future, I urge that efforts be made without delay to develop a land plan in the far east side that would prohibit residential development in the near proximity of the plant and within approximately one mile of the treatment works.

Please let me know if I can be of any assistance.

W. R. Hardy

W. R. Hardy
Special Assistant to the
City Manager

WRH:jc
CC: Mr. Robert L. Herchert, City Manager
Mr. Vernell Sturns, Assistant City Manager
Mr. Darrell Noe, Assistant Planning Director
Mr. Joe Bilardi, Development Director
Mr. Les Robinson, Water Director
Mr. Keith Smith, Public Works Director

WF

CITY OF FORT WORTH, TEXAS

TRANSPORTATION AND PUBLIC WORKS DEPARTMENT
1000 THROCKMORTON STREET
FORT WORTH, TEXAS 76102
870-7800 / AREA CODE 817

July 7, 1983

Mr. Ron Morrison
Federal Emergency Management Agency
Region VI
Federal Center
Denton, Texas 76201

SUBJECT: VILLAGE CREEK LANDFILL AND HYDROLOGIC STUDY AND CONCEPT PLAN

Dear Mr. Morrison:

The City of Fort Worth is hereby submitting for review and approval the Village Creek Landfill and Hydrologic Study and Concept Plan for proposed improvements within the floodway in the vicinity of Bedford-Arlington Road north of the Trinity River. With the submittal of the required data as summarized below, the City is requesting that the Federal Emergency Management Agency (FEMA) Regional Office approve the changes within the floodway.

The proposed project involves the construction of a sludge dewater facility complete with a sludge landfill for disposal of sludge from the municipality owned Village Creek Wastewater Treatment Plant. The facility will be surrounded by an earthen levee to prevent flooding from the Trinity River. There were a number of alternatives examined in the attached report to offset the rise in water surface by the existing and proposed landfills. Alternative 2 was selected and involves some reduction in the area of existing sludge drying beds, construction of a flood relief channel, and the leveling of existing gravel pit spoil piles just south of the relief channel.

Attached for your review are two copies of the subject study report containing the required data and exhibits. Included in the report are the following:

1. A copy of the printout for the floodway model for the 100 year water surface at existing conditions, encroached conditions, and at the proposed configuration (Appendices A&B).

2. A copy of the revised Floodway Data Table for the proposed floodway configuration (Appendix C).

3. A location map (Exhibit 1) and maps showing the existing conditions, encroached conditions, and proposed conditions. These maps show the floodway limits and the water surface elevations at the Corps selected cross-sections (Exhibits 2&3).

4. A map showing the previous floodway conditions as derived from the Flood Insurance Study - City of Fort Worth, Texas dated December 1979 (Exhibit 4).

If there are any questions regarding this proposed project, or if there is a need to provide additional information, please contact Bill Lowery, Chief of Development Activities, at 870-7907.

We appreciate your assistance in this very worthwhile project.

Sincerely,

Gary L. Santerre

Gary L. Santerre, P.E.
Director, Transportation and Public Works

GLS:BG:sb

cc: Dallas Williams, Assistant Director, Transportation and Public Works
Lee Bradley, Assistant Director, Water Engineering
WLE Bill Lowery, Chief of Development Activities
Bob Green, Design Engineer
7/14 Project File

Federal Emergency Management Agency
Washington, D.C. 20472

November 7, 1983

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Honorable Bob Bolen
Mayor of the City of Fort Worth
1000 Throckmorton Drive
Fort Worth, Texas 76102

Dear Mayor Bolen:

This is in reference to a letter submitted by Mr. Gary L. Santerre, P.E., Director of Transportation and Public Works for Fort Worth, Texas, dated July 7, 1983, forwarded to us by our Region VI office. In his letter, Mr. Santerre requested that the Federal Emergency Management Agency (FEMA) approve proposed construction within the floodway of the West Fork of the Trinity River just north of the Village Creek Wastewater Treatment Plant. The proposed project involves the construction of a sludge dewatering facility and sludge landfill to be surrounded by earthen levees. A flood relief channel will be excavated in the flood plain adjacent to the landfill to help mitigate the rise in water-surface elevations which would occur due to the landfill. In addition to the flood relief channel, the northeast corner of an existing sludge drying bed will be removed to help convey floodwaters through that area without causing a rise in water-surface elevations.

In order for any construction to take place inside the floodway boundary, the effective floodway configuration must be revised to exclude the area of new construction. This requires a revision of the effective Flood Insurance Study (FIS) for Fort Worth. Since the aforementioned project is not yet complete, a physical map revision cannot be performed at this time. FEMA will, however, review and critique the proposed project to ensure compliance with applicable National Flood Insurance Program (NFIP) regulations.

We have reviewed the plans and HEC-2 model of the proposed construction submitted by Camp Dresser & McKee in their report entitled, "Village Creek Landfill Hydrologic Study," dated June 14, 1983. Based upon our review of that study, we believe that the 100-year flood elevations developed by the Corps of Engineers for existing and encroached conditions will not increase as a result of the proposed construction and alternate floodway configuration.

After completion of the proposed modifications, the community may request a revision of the Fort Worth FIS. At that time, the following information will be required:

1. "As-built" plans of the completed project certified by a registered professional engineer.

2. Evidence indicating the community's agreement to maintain the levees in the form of an ordinance which specifies the maintenance activities to be performed, the frequency of their performance, and the community official(s) responsible for their performance. If the detail or complexity of such maintenance activities precludes their incorporation in an ordinance, the ordinance should reference a maintenance plan document which contains such details.

Upon receipt and review of items 1 and 2 above, FEMA will prepare and issue a set of preliminary maps incorporating the effects of the completed project. An appropriate period for community review will then be provided.

Should you have any questions concerning these requirements or procedures, please do not hesitate to contact Mr. R. Dell Greer, Chief, Natural and Technological Hazards Division of the Federal Emergency Management Agency in Denton, Texas, at (817) 387-5811 or members of our central office staff in Washington, D. C., at (202) 287-0230.

Sincerely,

Brian R. Mrazik, Ph.D.
Chief, Engineering Branch
Natural Hazards Division

cc: Mr. Gary L. Santerre, P.E., Director, Transportation and Public Works
Mr. Eric Schweizer, P.E., Camp Dresser & McKee, Inc.

INTER-OFFICE CORRESPONDENCE

TO Mr. James Toal, Director
Planning Department

DATE November 9, 1983

FROM Richard W. Sawey, Director
Water Department

SUBJECT LAND PLANNING IN THE VICINITY OF THE
VILLAGE CREEK WASTEWATER TREATMENT PLANT

The purpose of this correspondence is to recommend that an adequate buffer zone be maintained in Fort Worth around the Village Creek Wastewater Treatment Plant by controlling residential development in the vicinity. It is important to have an adequate buffer zone, especially with a major wastewater treatment facility, so that residents in the area are not subjected to occasional nuisance odors, noise and vectors. A buffer zone is usually the most cost-effective method to prevent problems with these nuisances. Other structural control methods to prevent nuisance conditions with such items as odor and noise are extremely expensive, and at times unrealiable.

Unfortunately, residential development was not adequately controlled around the treatment plant where it borders the City of Arlington. Residential development has been allowed in Arlington within one-fourth (1/4) of a mile from the Village Creek plant and actually adjacent to the sludge drying beds. The residents in these areas are the source of numerous complaints involving occasional odors, noise and vectors. These are the conditions that can be controlled in Fort Worth with prudent land use measures.

It has been noted that the proposed Meadowbrook Sector Plan, which incorporates residential development in Fort Worth nearest to the treatment plant, recommends low density attached residential development east of the club in Bently Village along the proposed John T. White Boulevard.

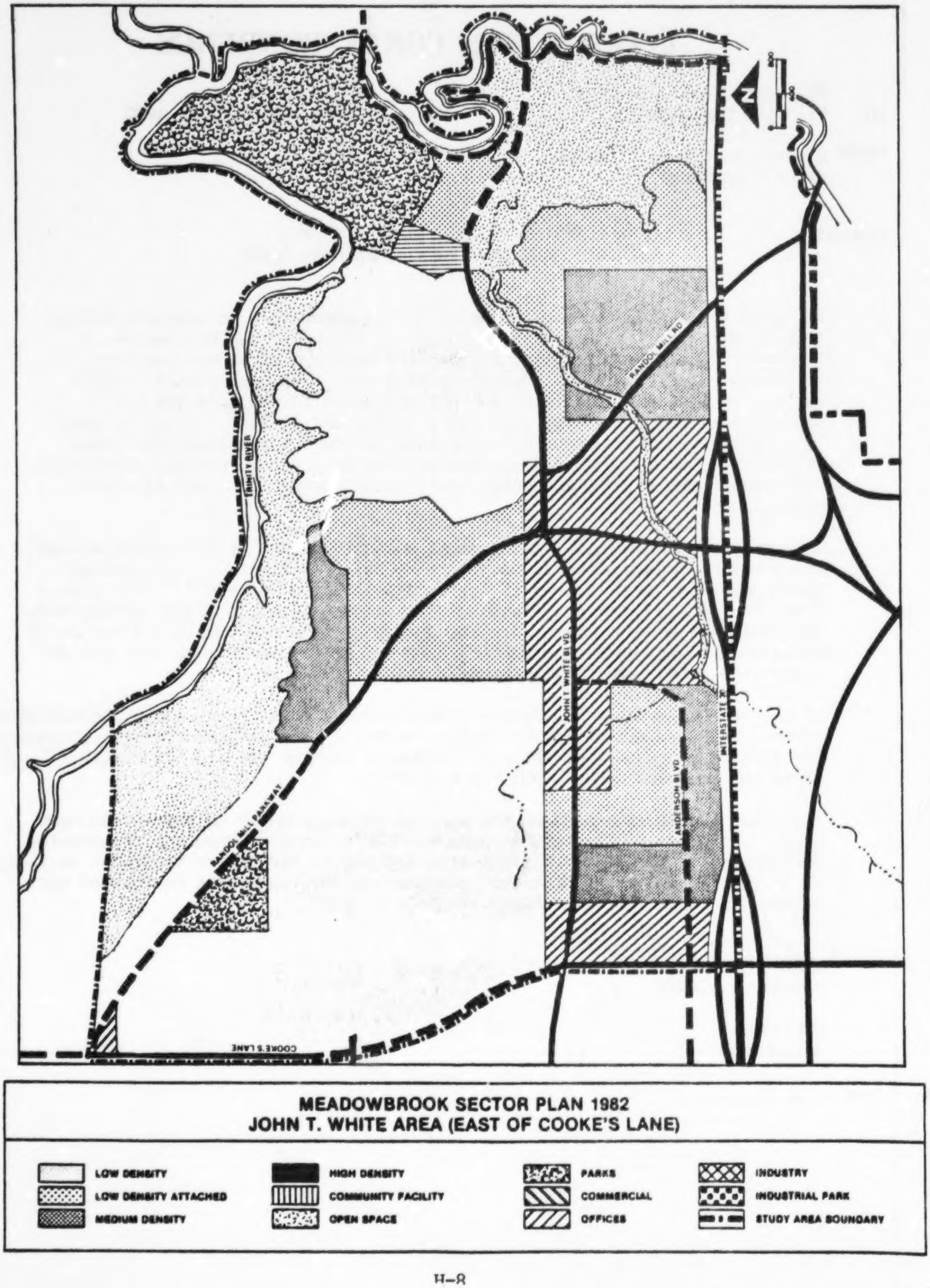
The other land to the east of the club is recommended to be a park and open space. In order to maintain an adequate buffer zone between the residential development in the Bently Village area and the Village Creek Treatment facility, it is recommended that additional residential development be restricted east of the existing club in Bently Village.

Richard W. Sawey

RICHARD W. SAWEY

RSW:JS:hl
Attachment

→ Jim Scanlan


N
TRINITY RIVER
RANDOL MILL RD
JOHN T. WHITE BLVD
ANDERSON BLVD
INTERSTATE 30
RANDOL MILL PARKWAY
COOKE'S LANE
LOW DENSITY
LOW DENSITY ATTACHED
MEDIUM DENSITY
HIGH DENSITY
COMMUNITY FACILITY
OPEN SPACE
PARKS
COMMERCIAL
OFFICES
INDUSTRY
INDUSTRIAL PARK
STUDY AREA BOUNDARY

MEADOWBROOK SECTOR PLAN 1982
JOHN T. WHITE AREA (EAST OF COOKE'S LANE)

United States Department of Agriculture
Soil Conservation Service
5009 S. Hulen #104
Ft. Worth, Texas 76132

November 29, 1983

James W. Scanlan
Asst. Director/Administration
Fort Worth Water Dept.
1000 Throckmorton
P.O. Box 870
Ft. Worth, Texas 76101

Dear Mr. Scanlan;

We have reviewed the proposal for the additional construction which is planned on the Village Creek disposal plant. As we understand it, you now have a need for vegetative information following construction. The following are some general recommendations which you might consider in order that you will achieve adequate erosion control as well providing a suitable habitat for the wildlife in the area.

The area in question includes a proposed Dike Relocation Area on the northwest corner of the Drybeds and a proposed Flood Channel adjacent to the dike. The soils in this area are predominantly Arents and Trinity Clay soils. The Arents soil is generally frequently flooded with low inherent fertility. The Trinity Clay soil is somewhat higher in inherent fertility, but is also frequently flooded. However, construction will involve intensive cutting and filling, rendering these areas in a less productive state.

Potential for wildlife habitat development around the dike relocation area is somewhat limited. This is especially true due to the fact that this area is heavily traveled and very small in size. However, the proposed flood channel area has very good possibilities for wildlife habitat development using appropriate wildlife food plants.

With all this in mind, we would make the following recommendations:

Fall Planting (To be done only if construction is completed after May 15 to Nov. 30, but must be followed by a Spring planting of perennial vegetation):

Seedbed Preperation- Use a one-way plow, tandem disk, bedder or equipment which will accomplish similar results. Tillage equipment should break or mix the top 4-5 inch surface of the soil. Additional tillage operations may be necessary so planting can be on clean, firm seedbed. Additional chiseling may also be necessary on areas which have been severly compacted by heavy equipment.

Temporary Cover Crop- These areas should be planted to some type of small grain such as wheat, oats, rye, barley or other annual cool season plants, which will provide erosion protection of the area prior to planting a perennial warm season vegetation. Optimum planting dates are Sept. 1 to Nov. 30. Planting rates when drilled or broadcasted are as follows:

Wheat - 120 lbs/ac
Oats - 128 lbs/ac
Rye - 112 lbs/ac
Barley - 144 lbs/ac

Fertilizer- Should be applied at a rate of 20 lbs of nitrogen, 40 lbs of phosphorous and 20 lbs of potassium per acre (20-40-20 per acre).

Spring Planting (To be done following Fall Planting of cover crop or if construction is completed after Nov. 30 to May 15)

Mulching- To be done if no Fall temporary crop is planted or if insufficient residues are produced. Apply at a rate of 2.5 tons per acre and anchored to soil surface using a straight set disk. Other types of mulch such as Hydro mulch, cotton bur mulch, etc. can also be used at recommended rates.

Seedbed Preparation- Same as that stated in the Fall Planting of temporary cover. Additionally, temporary cover crop must be top killed using an approved contact herbicide or by mechanically undercutting the growing cover crop leaving all residues on or near soil surface. This must be done to reduce competition of annual cover crop with permanent vegetation to be planted and therefor insure a successful stand of perennial vegetation. Follow all label instructions if chemicals are used.

Sprigging- Sprig Coastal bermudagrass on all sloping or channel areas to protect from erosion. This should be done at a minimum rate of 24 bushels (30 cubic feet) of sprigs per acre. Flatter areas, or areas not susceptable to erosion, can also be planted to Coastal bermudagrass or may be drilled to species which may enhance the area for some wildlife. This can include species such as:

Switchgrass	7 lbs	pure live seed per acre
Kleingrass	4 lbs	"
Sweet clover	12 lbs	"
Vetch	15 lbs	"
Maximilian sunflower	1 lb	"
Illinois bundleflower	1.5 lbs	"
Englemann daisy	2 lbs	"

Rates should be adjusted depending on ratio or percentage of mixture used.

Fertilizer- To be applied at a rate of 80 lbs/acre of nitrogen, phosphorous, and potassium (80-80-80 per acre) at or near time of planting.

We appreciate the opportunity to work with you on this matter. Please feel free to contact us if you have any questions regarding our recommendations. We will also be available to give you any additional on site information at planting time if needed.

Thank you,

Humberto Hernandez

Humberto Hernandez
District Conservationist
Ft. Worth Field Office

cc: Robert F. Pence, P. E., BCFN Inc., Ft. Worth, TX
Ronald B. Siegar, P. E., BCFN Inc., Ft. Worth, TX
Presley B. Hatcher, EPA, Dallas, TX
H. Brooks Carter, Ecol., USACOE, Ft. Worth, TX
Billy K. Colbert, Biol., USFWS, Ft. Worth, TX
Marion S. Porter, AC, SCS, Terrell, TX

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Ecological Services
9A33 Fritz Lanham Building
819 Taylor Street
Fort Worth, Texas 76102

December 2, 1983

Mr. James W. Scanlan
Asst. Director, Administration
Fort Worth Water Dept.
P.O. Box 870
Fort Worth, Texas 76101

Dear Mr. Scanlan:

Representatives of this office have met numerous times with Fort Worth City officials, its consultants, (Brown and Caldwell and Freese and Nichols, Inc.), and other involved Federal agencies concerning proposed wastewater treatment facilities for the City of Fort Worth. Our most recent meeting was a field trip to the project site on November 14, 1983. These meetings resulted from comments we provided on the Draft Environmental Impact Statement. The comments requested that adequate habitat mitigation measures be provided in the final project design.

In order to update and clarify recommendations and ideas that have been discussed in our meetings, we present the following items for your consideration:

The beneficial sludge reuse area, which we understand is to be confined to the open area east of the Trinity River, presently serves as good wildlife habitat. The trees and other riparian vegetation adjacent to the river, coupled with the open savannah type area, creates an excellent edge effect which is quite beneficial to wildlife resources. We recommend that the woody riparian vegetation be left undisturbed, and a 30 to 50 foot strip of the native grasses between the trees and the sludge reuse area also be left intact. We believe this will help create an excellent area of wildlife habitat and diversity.

Expanding existing wetlands adjacent to the present sludge drying beds when the proposed new levee is constructed at that site should result in an additional ten to fifteen acres of wetlands. A shallow wetland similar to the existing area should be provided. Therefore, standing water would not normally be present through the summer months, avoiding a significant mosquito problem.

It is also our understanding that the entire area south of the proposed flood relief channel to the acquired southern boundary will be left undisturbed. We recommend this entire area be fenced and dedicated as wildlife habitat. We generally agree with the Soil Conservation Service (SCS) recommendations provided you for vegetation plantings in their letter of November 29, 1983. However, for areas not susceptible to erosion we suggest the variety of plant species beneficial to wildlife be planted, rather than Coastal bermudagrass.

If these measures are included in the final project design and Environmental Impact Statement, and implemented, we believe this will be a favorable project from a fish and wildlife standpoint.

We wish to commend everyone involved for what we perceive as a highly cooperative attitude toward environmental concerns. We believe this project is an example whereby project features can be adjusted to benefit wildlife resources at minimal additional costs and the City of Fort Worth can be proud of such a development.

If you have questions or need additional information, please call Bill Colbert or Harold Beierman at 334-2961.

Sincerely yours,

David E. Carter

Jerome L. Johnson
Field Supervisor

cc: Presley Hatcher, Environmental Protection Agency, Dallas, TX
Robert F. Pence, Freese & Nichols, Brown & Caldwell, Consulting Engineers, Fort Worth, TX
Brooks Carter, U.S. Army Corps of Engineers, Fort Worth, TX
Humberto Hernandez, Soil Conservation Service, Fort Worth, TX
Regional Director, FWS, Albuquerque, NM (AHR)

FORT WORTH WATER DEPARTMENT
P.O. BOX 870 1000 THROCKMORTON
FORT WORTH, TEXAS 76101

ADMINISTRATION DIVISION
(817) 870-8220

February 14, 1984

Dr. Robert Neill
Department of Biology
University of Texas at Arlington
Arlington, Texas 76019

Dear Dr. Neill:

The City of Fort Worth has recently purchased a large tract of land located directly north of the City's Village Creek Wastewater Treatment Plant in east Fort Worth (see attached map). A portion of the land is to be used for a new sludge dewatering and landfill site (Section A on the map), while other portions are to be used for a flood relief channel (Section B) and an agricultural reuse area for sludge (Section C). The remaining area (Sections E, F and G) of approximately 200 acres, will remain mostly undisturbed and the City proposes to maintain this area in its natural state. A large portion of the 200 acres contains revegetated strip mines (Section F) and the other portion contains a segment of the Trinity River surrounded by bottom land forest (Sections E and G). Some wetland area is also contained within the 200 acres.

The unused portion of the tract of land may contain wildlife habitat of local interest. It is proposed to make this unused area available to educational institutions to use as a study area for the 20 year life of the proposed project. Access to the area will be limited and will be controlled by the staff at the Village Creek Wastewater Treatment Plant.

If you are interested in using the natural area described above as a nature and wildlife study area, please indicate by signing below. Questions concerning the area may be directed to James Scanlan at 870-8203.

Very truly yours,

Richard W Sawey

Richard W. Sawey
Director

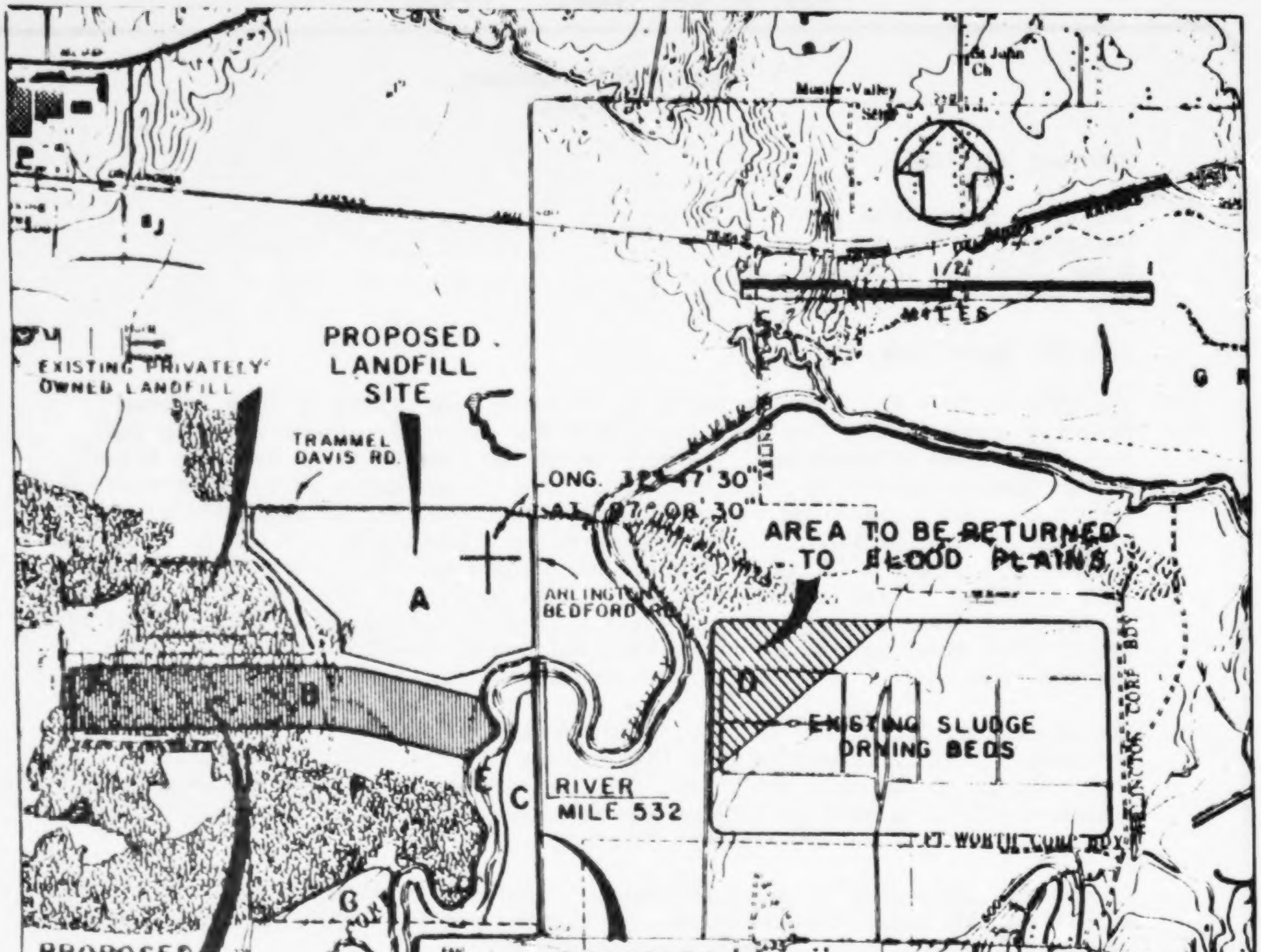
RWS:JWS:hl
Attachment

I am interested in using the land identified on the attached map as Areas E, F and G as a nature and wildlife study area.

Name: Robert Neill Signature: Robert L. Neill

Title: Acting Chairman Department of Biology

Organization: The University of Texas at Arlington


Mosier Valley
1/2
1
MILES
PROPOSED LANDFILL SITE
EXISTING PRIVATELY OWNED LANDFILL
TRAMMEL DAVIS RD.
LONG. 32° 47' 30"
LAT. 97° 08' 30"
AREA TO BE RETURNED TO FLOOD PLAINS
A
ARLINGTON BEDFORD RD.
B
D
EXISTING SLUDGE DRYING BEDS
E
C
RIVER MILE 532
G
PROPOSED RELIEF CHANNEL
PROPOSED PIPELINES
Sewage Disposal
F
FORT WORTH
ARLINGTON
INTERSTATE

VICINITY MAP
FROM U.S.G.S. 7.5 MIN. QUAD. MAPS

IN WEST FORK OF TRINITY RIVER
AT FORT WORTH, TEXAS
COUNTY OF TARRANT
STATE OF TEXAS
APPLICATION BY CITY OF
FORT WORTH

FIGURE 1 OF 7 DATE 12-15-83

FORT WORTH WATER DEPARTMENT
P.O. BOX 870 1000 THROCKMORTON
FORT WORTH, TEXAS 76101

ADMINISTRATION DIVISION
(817) 870-8220

February 14, 1984

Dr. W. J. Barcellona
Department of Biology
Texas Christian University
Fort Worth, Texas 76129

Dear Dr. Barcellona:

The City of Fort Worth has recently purchased a large tract of land located directly north of the City's Village Creek Wastewater Treatment Plant in east Fort Worth (see attached map). A portion of the land is to be used for a new sludge dewatering and landfill site (Section A on the map), while other portions are to be used for a flood relief channel (Section B) and an agricultural reuse area for sludge (Section C). The remaining area (Sections E, F and G) of approximately 200 acres, will remain mostly undisturbed and the City proposes to maintain this area in its natural state. A large portion of the 200 acres contains revegetated strip mines (Section F) and the other portion contains a segment of the Trinity River surrounded by bottom land forest (Sections E and G). Some wetland area is also contained within the 200 acres.

The unused portion of the tract of land may contain wildlife habitat of local interest. It is proposed to make this unused area available to educational institutions to use as a study area for the 20 year life of the proposed project. Access to the area will be limited and will be controlled by the staff at the Village Creek Wastewater Treatment Plant.

If you are interested in using the natural area described above as a nature and wildlife study area, please indicate by signing below. Questions concerning the area may be directed to James Scanlan at 870-8203.

Very truly yours,

Richard W. Sawey

Richard W. Sawey
Director

RWS:JWS:hl
Attachment

I am interested in using the land identified on the attached map as Areas E, F and G as a nature and wildlife study area.

Name: WAYNE J. BARCELLONA Signature: Wayne J. Barcellona

Title: Chairman, Department of Biology

Organization: TEXAS CHRISTIAN UNIVERSITY

With the proviso noted that Texas Chrisitan University will incur no financial obligations

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102

REPLY TO
ATTENTION OF:

[illegible]
PCH

February 24, 1984

WATER ADMINISTRATION
RECEIVED BY: ____ DATE: 3 [illegible]
FILE: ____
COPY TO: ____

Office Operations Branch

Mr. Robert L. Herchert
City Manager
City of Fort Worth
Post Office Box 870
Fort Worth, Texas 76102

Dear Mr. Herchert:

The U.S. Army Corps of Engineers (COE) is currently processing your application for a Section 404 and Section 10 permit for the proposed expansion of the Village Creek Wastewater Treatment Facility.

We want to make you aware that the proposed sludge landfill and flood relief channel are located in the planned route of the multi-purpose channel of the Westfork Floodway associated with the Trinity River project which the COE has been studying. The General Design Memorandum Phase I dated October 1981 recommended no federal participation for this project due to economical infeasibility at this time.

If you have any questions or need additional informtion, you may contact Mr. Brooks Carter at 334-3551.

Sincerely,

L. M. Hawkins, Jr.
Chief, Office Operations Branch

Copy Furnished:
Mr. Clinton Spotts
Environmental Protection Agency
6ES-FP
1201 Elm Street
Dallas, Texas 75270

CITY OF FORT WORTH
Water Administration

IN REPLY REFER TO:

MARCH 3, 1849

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Ecological Services
9A33 Fritz Lanham Building
819 Taylor Street
Fort Worth, Texas 76102

February 24, 1984

Mr. James W. Scanlan
Asst. Director, Administration
Fort Worth Water Dept.
P.O. Box 870
Fort Worth, Texas 76101

Dear Mr. Scanlan:

On January 23, 1984, a representative of my staff met with you, the City's consultants and a representative of the Environmental Protection Agency to verify current construction, operation, and mitigation alternatives for the proposed expansion at the Village Creek Wastewater Treatment Facilities. Since September 1983, there have been several meetings to resolve the issues related to providing mitigation for fish and wildlife resources associated with the proposed project.

Based upon information currently available to us, the most significant impacts will occur to riparian and floodplain woodlands during construction of the flood relief channel. This aspect of the project, depending upon final configuration, will impact between 75 and 100 acres of second growth riparian forest associated with abandoned gravel pits and riparian forest adjacent to the Trinity River. Construction and operation of the sludge landfill will directly impact approximately 200 acres of native grass and herbland.

Our understanding at present is that the City of Fort Worth is willing to set aside approximately 40-45 acres of woodlands immediately south of the flood relief channel and north of the Trinity River for wildlife preservation purposes. The area will undergo only low intensity management during the 20-year life of the project. The area will be open to organized groups and two local universities for educational purposes.

The City of Fort Worth has agreed to incorporate other features beneficial to wildlife into the project. These features include the provision of wildlife plantings and the maintenance of deeper pools within the flood relief channel. The plantings and maintenance will be based upon information provided by the Soil Conservation Service (SCS) in their letter of November 29, 1983, and supplemented by our letter of

December 2, 1983. The plan also provides for the maintenance of a buffer zone between the Trinity River and the beneficial sludge reuse experimental area. This zone will include the existing riparian woods plus an additional 20-foot strip of native grasses.

The current plan includes a reduction in size of the existing sludge dewatering area to increase flood water conveyance. The City has agreed to grade the area which will be removed from the dewatering area in a manner that will result in the expansion of an existing wetland by approximately 10 to 15 acres. Initial stabilization and eventual conversion to wetland will be accomplished by guidance provided in the referenced SCS and Fish and Wildlife Service (FWS) letters.

Until our January 23rd meeting, we had reservations regarding the time period that the City was willing to set aside the block of woods. Initially, we believed the area should be set aside for a longer period than the 20-year life of the project in order to provide adequate mitigation of the project impacts. During that meeting, however, it was noted that the habitat was afforded immediate protection when an option to purchase the tract was secured by the City more than a year ago. Since the life-of-the-project will not begin for at least one more year, preservation of the bottomland hardwoods will cover a minimum of 22 years. In addition, our preliminary analysis assumed the proposed mitigation lands would not be threatened for a minimum of ten years without the project. It was brought to our attention that parts of the mitigation land were being mined for topsoil at the time the City secured the option. Since there was a more immediate threat to the habitat than we had first assumed, the preservation of the habitat can be given more credit. For this reason, we now believe that preservation of the woodlands for the life-of-the project, or a minimum of 20 years, will be adequate to mitigate losses associated with the Village Creek Wastewater Treatment Facilities expansion.

At the most recent meeting, we recommended the City consider providing nest boxes for wood ducks adjacent to gravel pits which will not be disturbed by the project. The City's consultants obtained literature citations from us during the meeting concerning types of structures and proper placement for wood duck use. We continue to believe that this is a viable management plan, and we recommend that the City incorporate wood duck management into the mitigation area. The most feasible approach would be to provide only a few nest boxes initially. Additional boxes could be added as usage patterns develop. We believe it would be to the City's advantage to make use of the staff of the Fort

Worth Nature Center and local universities to monitor wildlife population trends within the mitigation area. We would also be pleased to provide additional guidance on this project.

We believe that adequate preservation of fish and wildlife resources will be accomplished for this project if the City provides the mitigative measures discussed within this letter. Please respond if our understanding of the mitigation measures that the City will provide is in error.

If you have questions or need additional information, please call Bill Colbert at 334-2961.

Sincerely yours,

Jerome L. Johnson
Field Supervisor

cc:
Presley Hatcher, Environmental Protection Agency, Dallas, TX
Robert F. Pence, Freese & Nichols, Brown & Caldwell, Consulting Engineers, Fort Worth, TX
Brooks Carter, U.S. Army Corps of Engineers, Fort Worth, TX
Humberto Hernandez, Soil Conservation Service, Fort Worth, TX
Regional Director, FWS, Albuquerque, NM (AHR)

FORT WORTH WATER DEPARTMENT
P.O. BOX 870 1000 THROCKMORTON
FORT WORTH, TEXAS 76101

ADMINISTRATION DIVISION
(817) 870-8220

March 2, 1984

Mr. Jerome L. Johnson
Field Supervisor
Ecological Services
U. S. Department of the Interior
Fish and Wildlife Service
9A33 Fritz Lanham Building
819 Taylor Street
Fort Worth, Texas 76102

Dear Mr. Johnson:

This letter is in reference to your letter dated February 24, 1984, concerning the mitigation plan for the Village Creek Wastewater Treatment Plant sludge landfill and dewatering facilities project. Your basic understanding of the proposed mitigation measures is accurate although some clarafication is provided below. The proposed plan will be implemented after approval of the project by the appropriate regulatory agencies.

The sludge landfill construction and operation will impact approximately 134 acres rather than 200 acres as indicated in your letter. Construction of the adjacent flood relief channel will impact from 75 to 100 acres. The flood relief channel, once completed and seeded, will be available for wildlife habitat. Only limited maintenance is anticipated in the channel.

An area of approximately 20-30 acres is to be set aside by the City for wildlife preservation purposes. This area is along the river banks and Area "G" as shown on Figure 1 of 7 of the Corps of Engineers 404 Section 10 permit application. Area "F", which is immediately south of the flood relief channel, may be partially disturbed during construction, but will be revegetated. The City has no immediate plans to use Areas "F" and "G", and they will be open to organized groups and local universities for educational purposes.

Within the flood relief channel, the deeper pools will be maintained where practical. As discussed in a prior meeting with your staff representatives, there may be some pools that will be filled or partially filled in order to properly grade the piles of spoil material.

We appreciate your response to our proposed plan and will keep you advised of the status of this project.

Sincerely,

Richard W. Sawey

Richard W. Sawey
Director

RWS:JWS:hl

cc: Mr. Presley Hatcher, EPA, Dallas, Texas
Mr. Robert F. Pence, BCFN
Mr. Brooks Carter, U. S. Army Corps of Engineers
Mr. Humberto Hernandez, Soil Conservation Service